

CHAPTER 11

LRU-15/A (MK-20) LIFERAFT ASSEMBLY

Section 11-1. Description

11-1. GENERAL.

NOTE

New procurements of twenty-man liferafts will be designated LRU-15/A. Reference to the designation MK-20 has been deleted throughout this chapter. However, all procedures and requirements referenced in this chapter pertaining to the LRU-15/A also apply to MK-20 liferafts.

11-2. The LRU-15/A is a twenty-man inflatable liferaft intended for use by aircrewmembers forced down at sea. It is stowed either in a readily accessible area inside the aircraft fuselage or in an aircraft compartment designed for liferafts.

11-3. CONFIGURATION.

11-4. The LRU-15/A Liferaft Assembly (see figure 11-1 through 11-3) consists of a twenty-man liferaft constructed of polychloroprene-coated cloth and an inflation assembly (CO₂ cylinder, inflation valve and cover). The liferaft consists of two single-compartment circular tubes connected by an equalizer tube, a noninflatable floor suspended between the circular tubes and a boarding ramp permanently attached to each tube. The floor is provided with a built-in inflatable floor support. A sea anchor is stowed in a pocket at the junction of the circular tubes. An inner lifeline, boarding handles, a heaving line, and emergency survival equipment stowed in the accessory container are provided. Topping-off valves are located on each side of the circular tubes, and on each side of the floor support.

NOTE

To make up the packaged assembly complete with accessories and survival items, all required components not supplied with the

raft assembly must be individually requisitioned.

The following subassemblies have been deleted from newly procured LRU-15/A liferafts: mast socket components, canopy related components, and one accessory container. New liferafts shall not be reworked to add subassemblies and older liferafts shall not be reworked to remove subassemblies since their presence is not detrimental to function of liferaft.

11-5. APPLICATION.

11-6. Multi-place liferafts are authorized for all rotary and fixed wing transport aircraft. Selection shall be based on mission, available storage space, and total number of crew and passengers carried. Additional consideration shall be made for the liferaft inspection cycle. C-130 series (except the C-130J) wing storage is limited to the LRU-15/A in the wing installation configuration. The C-130J wing storage is limited to the LRU-33/A and the Air Cruisers 46-man P/N 63880-103/104. The V-22 is limited to the LRU-34/A and liferafts listed in the current V-22 flight clearance.

11-7. FUNCTION.

11-8. The LRU-15/A Liferaft Assembly (droppable) is inflated by pulling the inflation assembly actuating handle, located outside the carrying case end flap. The LRU-15/A Liferaft Assembly (wing installation) is automatically ejected from the liferaft compartment after the liferaft compartment door has been released, and inflated. A unique design feature of the LRU-15/A is that it is always right-side-up after inflation. The inflation assembly inflates the circular tubes and boarding ramps only. In the event the inflation assembly does not function properly, the equalizer tube distributes gas equally between each circular tube. After boarding, the floor support is inflated with the hand pump provided in the accessory container. The circular tubes may be topped-off, if necessary, from either side of the liferaft floor.

Table 11-1. Deleted

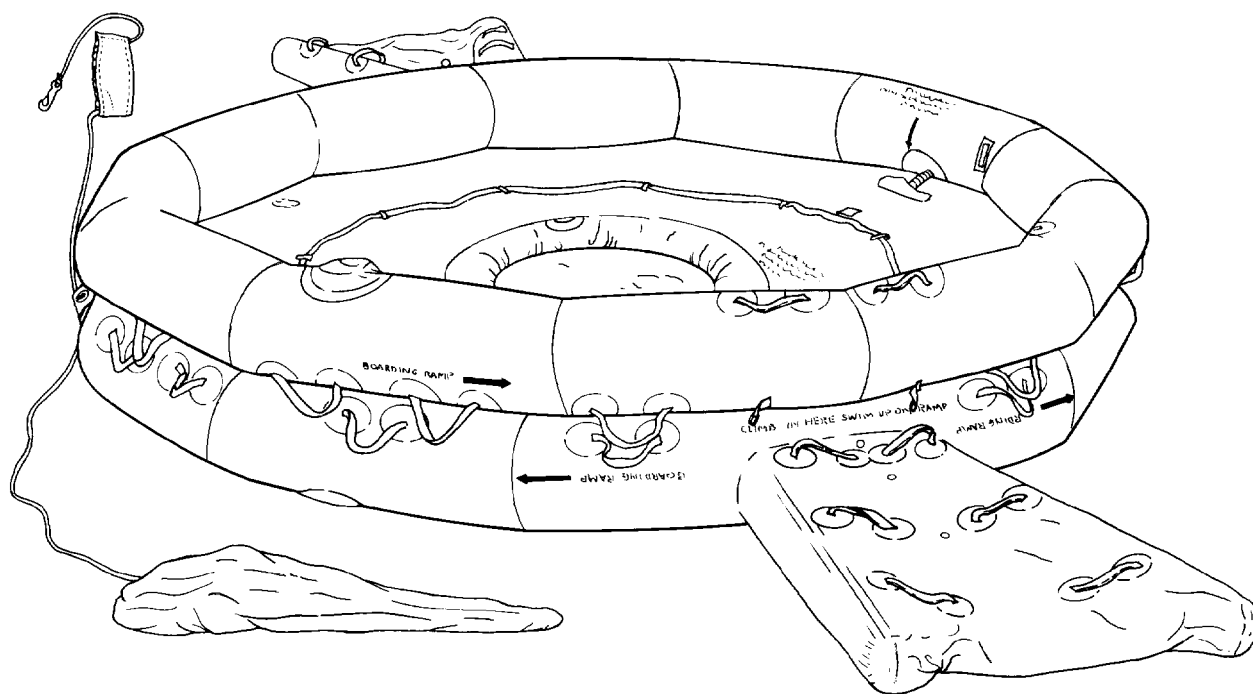


Figure 11-1. LRU-15/A Liferaft Assembly

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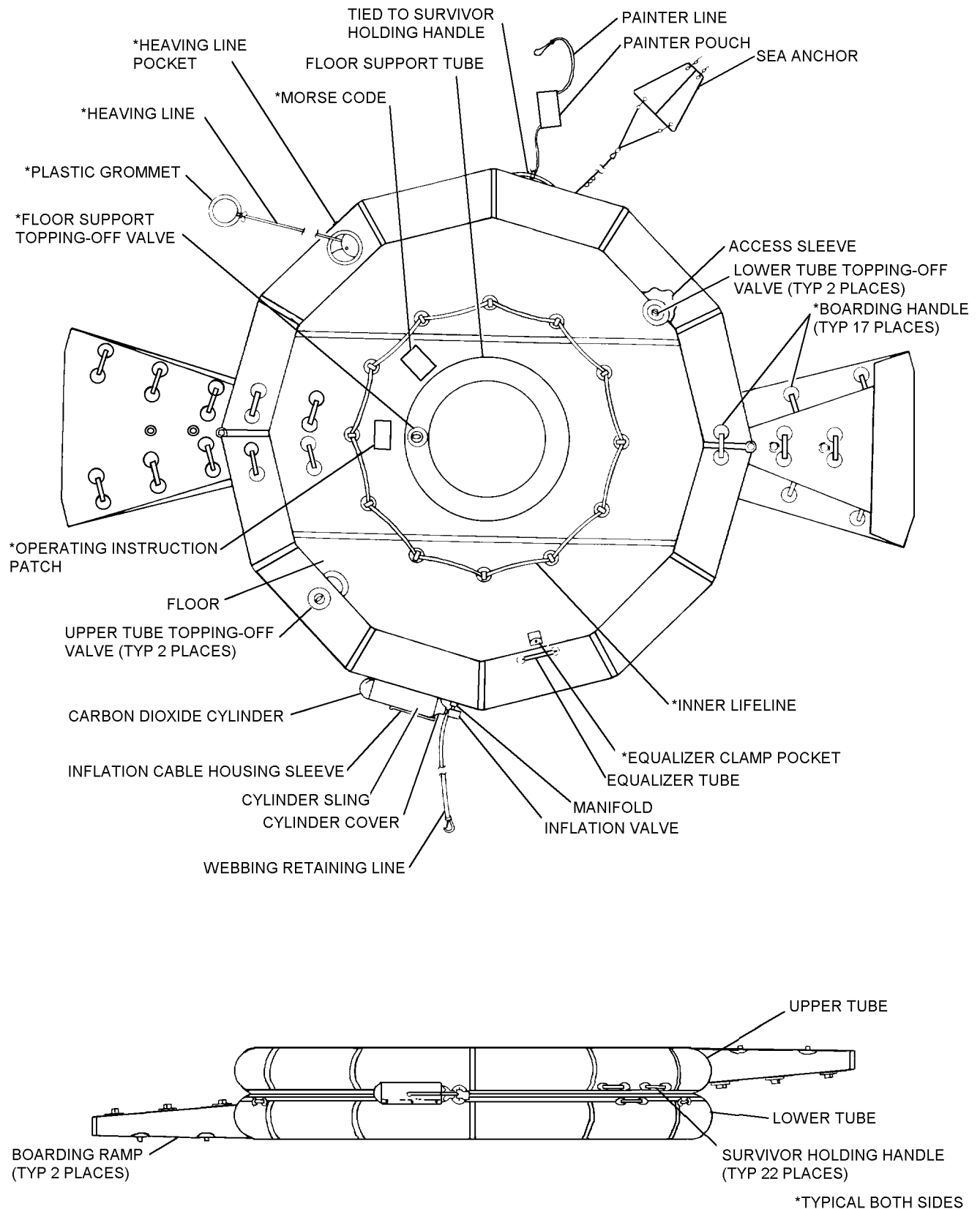


Figure 11-2. LRU-15/A Liferaft Assembly, Parts Nomenclature

10110002



Figure 11-3. LRU-15/A Carrying Cases and Accessory Container

Section 11-2. Modifications

11-9. GENERAL.

pairs and fabrications to maintain serviceability are listed in table 11-2.

11-10. There are no authorized modifications to the LRU-15/A liferaft assembly at this time. Common re-

Table 11-2. LRU-15/A Common Repairs and Fabrications

Description of Repair or Fabrication	Paragraph Number
Determination of Repairability	11-51
Cementing Liferafts	11-52
Patching Liferafts	11-53
Recementing or Replacing Seam Tapes	11-54
Sea Anchor/Mooring Line Replacement	11-55
Replacement of Locking Cones	11-57
Relocation of Retaining Line Instruction Tag	11-58
Soldering of Snaphook Spring Latch on Remote Actuator Assembly	11-59
Fabrication of Painter Line Pouch	11-60
Drilling Holes in P/N A128-RT-1	11-61
Drilling Holes in P/N IV0303 Inflation Valve	11-62
Drilling Holes in P/N A128 Inflation Valve	11-63
Drilling Holes in P/N 871444 Inflation Valve	11-64
Fabrication of Cylinder Valve Antichafing Sleeve	11-65
Replacement of Topping-off Valve	11-66
Fabrication of Liferaft Container for C-130 Aircraft	11-67 (Note 1)
Fabrication of Mockup C-130 Wingwell	11-68 (Note 1)
Removal of Inlet Check Valve Elements and Fabrication of Identification Patch	11-69 (Note 2)
Replacement of Manifold	11-70 (Note 2)
Fabrication of Survivor Attachment Strap	11-71 (Note 3)
Replacement of Liferaft Heaving Line	11-72
Repair of Carrying Case	11-72A
Notes: 1. All C-130 wing installed 2. All wing installed 3. All LRU-15/A Droppable	

Section 11-3. Maintenance

11-11. GENERAL.

11-12. This section contained information on inspection, disassembly, repair/replacement, testing, and reassembly of the LRU-15/A liferaft.

11-13. INSPECTION.

11-14. All liferaft assemblies shall be subjected to Preflight/Special and Calendar/Phase Inspections.

11-15. The Preflight Inspection shall be performed on fuselage-installed liferafts prior to first flight of the day. This inspection shall be performed by line personnel (plane captain or delegated aircrewmember) who have been designated by the line division officer, instructed and found qualified by the Aviator's Equipment Branch.

11-16. The Special Inspection shall be performed on fuselage-installed liferafts every 30 days. This inspection shall be performed at the organizational level of maintenance by personnel assigned to the Aviator's Equipment Branch. Upon completion, the date of inspection and inspector's signature shall be entered on appropriate form in accordance with OPNAVINST 4790.2 Series.

11-17. All liferafts shall be subjected to the Calendar/Phase Inspection prior to placing in service or, if an aircraft inventory item, at the time of the aircraft Acceptance Inspection. Thereafter, the Calendar/Phase Inspection interval shall coincide with the aircraft inspection cycle in which they are installed, except the helicopter back pack, which shall be inspected every 225 days. See applicable Planned Maintenance System (PMS) publications for specific intervals. In no case shall the interval exceed 231 days. Unless operational requirements demand otherwise, the liferaft Calendar/Phase Inspection shall be performed by intermediate level of maintenance or above.

NOTE

A functional test and pull cable proof load test shall be performed prior to placing in service or during aircraft Acceptance Inspection, and each fourth inspection cycle thereafter. A leakage test shall be performed at each inspection cycle. If inspection indicates damage beyond capability of maintenance, complete applicable forms in accordance with OP-

NAVINST 4790.2 Series and forward entire assembly to supply. Refer to [paragraph 11-51](#) for determination of repairability.

11-18. QUALITY ASSURANCE. The procedures detailed present a logical sequence for proper inspection. Quality assurance steps are provided for critical operations. When a step is underlined, the Aircrew Survival Equipmentman shall perform the operation, then have performance verified by a Quality Assurance Representative (CDI, CDQAR, or QAR) prior to proceeding to the next operation. Work center supervisors are primarily responsible for quality assurance within their work centers. OPNAVINST 4790.2 Series permits them to nominate their more experienced personnel to be Collateral Duty Inspectors. Those nominated are screened and examined by the units Quality Assurance Officer prior to being designated Collateral Duty Inspectors by the Commanding Officer. In no case shall an Aircrew Survival Equipmentman perform his own quality assurance inspection. Procedures for quality assurance are listed following major operations.

11-19. PREFLIGHT/SPECIAL INSPECTION (FUSELAGE-INSTALLED LIFERAFTS). To perform a Preflight/Special Inspection, visually inspect for the following:



Do not open liferaft access doors or any sealed or safety-wired/safety tied portion of liferaft for this inspection.

NOTE

For wing installed liferafts, perform Preflight/Special Inspections in accordance with applicable aircraft MIMS.

1. Fabric for cuts, tears, deterioration and abrasion.
2. Seams for proper adhesion or stitching.
3. Straps and handles for security and wear.
4. Any other parts for wear, damage and security.
5. All hardware for security of attachment, corrosion, damage, wear, and if applicable, ease of operation.
6. Liferaft retaining line for proper stowage.

7. Liferaft painter line for presence and attachment.
8. Heaving line for proper stowage (if applicable).
9. Ensure that liferaft is properly stowed. Check for bulges caused by trapped air in liferaft.
10. Ripcord pins and cable for bends, fraying, or other damage; ripcord pins for security of attachment to cable.
11. Swaged ball on handle and swaging sleeve on cable for security.

WARNING

Use only authorized safety tie. No tape, wire, or cord shall be employed to secure ripcord pins.

12. Ripcord pins fully inserted into cones, first, middle and last, and ripcord pins safety-tied to cones with one turn size E nylon thread (V-T-295), single.

13. Snap fasteners on end flaps and ripcord protector flap securely fastened.

14. If discrepancies are found or suspected, Maintenance Control shall be notified.

11-20. ACCEPTANCE/CALENDAR/PHASE INSPECTION. The Acceptance/Calendar/Phase Inspection consists of the following major tasks (to be performed in the order listed):

1. Container/Case Inspection
2. Functional Test (If Required)
3. Pull Cable Proof Load Test (If Required)
4. Deflation
5. Functional Test and Adjustment of Manifold
6. Visual
7. Liferaft Configuration
8. General Inspection
9. Markings Inspection
10. Survival Items and Accessories Inspection
11. Inflation Assembly Inspection
12. Inspection of Inflation Assembly (Charged)
13. Inspection of Inflation Assembly (Discharged)

14. Cylinder Markings
15. Leakage
16. Records Updating
17. Repacking

11-21. PACKED CONTAINER/CASE INSPECTION. To inspect packed containers/cases, examine the following:

1. Fabric for cuts, tears, deterioration, and abrasion.
2. Seams for proper adhesion of stitching.
3. Straps and handles for security and wear.
4. Any other parts for wear, damage, and security.
5. All hardware for security of attachment, corrosion, damage, wear and, if applicable, ease of operation.
6. Container and/or case for stains, dirt, and general condition.

11-22. FUNCTIONAL TEST. To functionally test a liferaft, proceed as follows:

CAUTION

Ensure that there is adequate area free of foreign objects for liferaft inflation.

1. Open liferaft case and unfold liferaft. The functional test shall be performed with the carbon dioxide bottle that was attached during the raft's last inspection. If actuation of the attached bottle will cause it to be non-RFI due to hydrostatic test requirements, and no replacement bottles are available, contact fleet support team for instructions.

2. Actuate inflation assembly.

3. On aircraft wing-installed liferafts, ensure the vent/shut poppet went to the up (SHUT) position after actuation, indicating that manifold vent is shut. If manifold P/N 9153 does not shut, perform functional test and adjustment, [paragraph 11-24](#). If manifold P/N C-50980 does not shut, dispose of and replace with new manifold (there are no adjustments to this manifold).

4. Measure time of inflation; liferaft shall inflate to design shape without evidence of restriction in less than 1 minute.

5. Examine liferaft for obvious damage such as cuts, tears, ruptured seams, and damaged manifold.

6. Determine cause if liferaft does not properly inflate. Remove manifold and valve, and inspect for cleanliness and embedded foreign matter.

7. Inspect manifold P/N 9153 nylon gaskets at raft connection point for damage and proper positioning. Inspect manifold P/N C-50980 copper seals at raft connection point for damage and proper positioning. For both manifolds ensure nylon gasket P/N 1106AS108-3 is not wedged in port between manifold and CO₂ cylinder valve.

WARNING

When reinstalling manifold (P/N 9153), ensure that nylon gaskets (P/N 1106AS108-2) are properly positioned; the two nylon gaskets with larger inside diameters are to be placed toward liferaft. When reinstalling manifold (P/N C-50980), ensure copper seals (P/N A50969) are present and properly positioned around the set screws on the outlets. Do not use nylon gaskets on the outlets with manifold P/N C-50980.

8. Install manifold, nylon gaskets and copper seals if required. Torque to 140 to 150 in-lb.

9. If correction is made, repeat [steps 2 through 5](#).

10. Depress vent/shut poppet; liferaft shall begin venting. On aircraft wing-installed liferafts, depress poppet on manifold; liferaft should begin venting.

11. (LRU-15/A with Manifold) Pull out vent/shut poppet; venting should stop. For manifold P/N 9153 use a test adapter as manufactured in [paragraph 11-24, step 1](#). For manifold P/N 50980 use a 6-40 threaded screw.

12. Deflate liferaft in accordance with [paragraph 11-25](#). Ensure that all carbon dioxide has been removed.

11-23. PULL CABLE PROOF LOAD TEST. To perform the proof load test, proceed as follows:

NOTE

Perform the Proof Load Test only after the functional test and prior to placing an inflation assembly in service.

1. Remove inflation valve cover plate.

2. Remove pull cable from valve and apply a 50-pound pull force between cable ball and snaphook.

3. Examine pull cable for broken strands of wire, deformed snaphook, security of snaphook spring latch attachment, and loose or cracked swage fittings. If any damage is found, the pull cable shall be discarded and replaced with a new cable. The new cable shall also be tested in accordance with [step 2](#). If snaphook spring latch is loose, it may be repaired in accordance with instructions contained in modification section for the liferaft, or replaced at the discretion of the inspection activity.

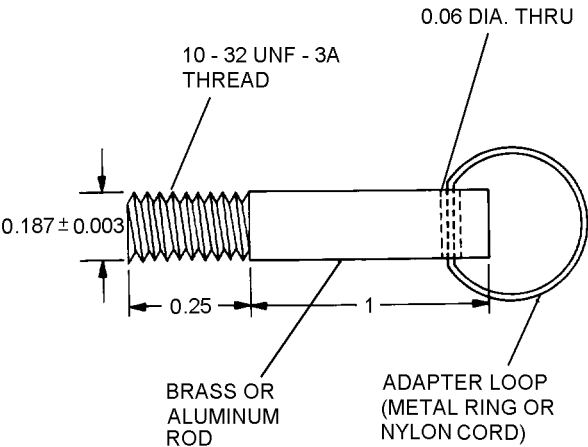
4. If pull cable passes this test, reinstall in accordance with [paragraph 11-47](#).

11-24. FUNCTIONAL-TEST AND ADJUSTMENT OF P/N 9153 MANIFOLD. To perform the functional test and/or adjust the force required to pull out the vent/shut poppet, proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Pull Test Adapter	9141 (CAGE 97375) Fabricate in accordance with step 1
1	Dial Push/Pull Gage, 0-50 lb	DPPH50 (CAGE 11710) or equivalent NIIN 00-473-0108

1. Fabricate a pull test adapter as shown if adapter is not available.



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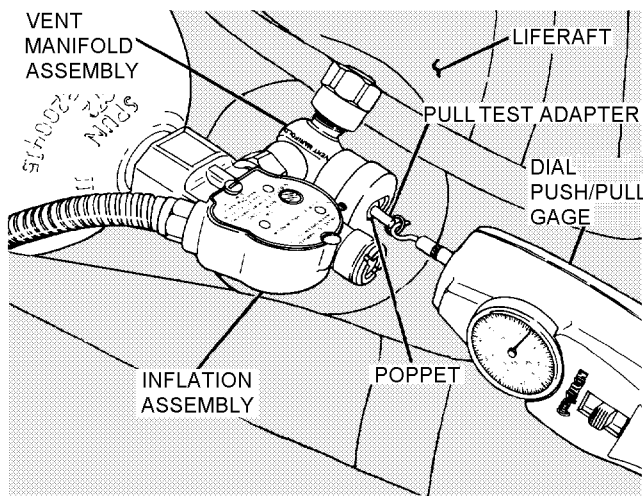
Step 1 - Para 11-24

2. Thread pull test adapter into vent/shut poppet.

NOTE

Ensure that vent/shut poppet is in the down (VENT) position.

3. Attach dial push/pull gage to pull test adapter. Measure force required to pull out vent/shut poppet. Force required shall be 6 to 7 pounds.



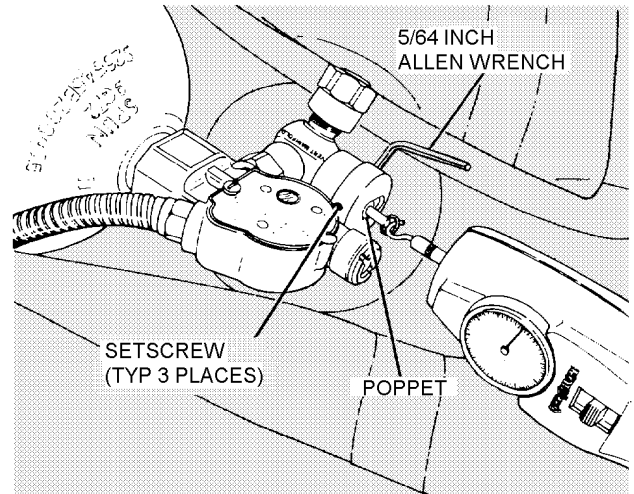
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Step 3 - Para 11-24

NOTE

If force to pull out vent/shut poppet was acceptable (6 to 7 pounds), proceed to [step 6](#). If the force was greater than 7 pounds or less than 6 pounds, make adjustment in accordance with [step 4](#).

4. Using a 5/64-inch Allen wrench, symmetrically adjust three setscrews on manifold. If force was greater than 7 pounds, back out setscrews; if force was less than 6 pounds, tighten setscrews until 6- to 7-pound requirement is met.



K0024004

Step 4 - Para 11-24

5. If 6- to 7-pound requirement cannot be met, replace manifold in accordance with [paragraph 11-70](#).
6. Depress vent/shut poppet to set manifold to vent position.

11-25. DEFLATION. To deflate liferaft, proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Pump, Vacuum Unit	61E44688 (CAGE 80049)
As Required	Hose, Rubber, 3/8 or 1/2 inch Inside Diameter	—

1. Attach one end of rubber hose to vacuum pump.
2. Open valve and hold vacuum pump hose over opening in valve. When compartment is collapsed, screw valve closed.

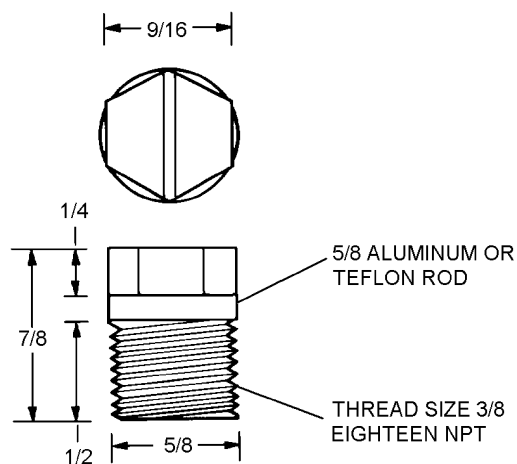
3. Pull the overlapping tube material away from the CO₂ cylinder as the upper and lower tubes deflate. Ensure CO₂ cylinder does not rest on tube material of deflated raft.

11-26. VISUAL INSPECTION. Prior to visually inspecting a liferaft assembly, the liferaft (and inflatable floors, if applicable) shall be inflated with air to 1.0 psig.



Remove CO₂ cylinder prior to inflating liferaft with air.

1. Remove CO₂ cylinder from CO₂ cylinder sling.
2. Fabricate a LRU-15/A Manifold Inlet cap (test plug) as follows.



Step 2 - Para 11-26

K0026002

3. Cap manifold inlet or install an empty CO₂ cylinder.

NOTE

If a suitable air source is not available, water pumped nitrogen (BB-N-411) may be substituted.

4. Inflate liferaft with air to 1.0 psig.

11-27. LIFERAFT CONFIGURATION. The liferaft shall be updated by comparing it to the applicable configuration illustrations in [Figures 11-1 through 11-3](#), and in [Section 11-4](#).

11-28. GENERAL INSPECTION. To perform the general inspection, inspect the following:

NOTE

If color, location, or stitching patterns of repaired, replaced, or previously incorporated noncritical items or features (eg, liferaft pockets, handle, ballast bag, sea anchor, etc.) do not exactly conform to instructions, do not remove or rework item or feature if flotation stability or capability and security of attachment are not compromised.

1. Liferaft fabric for cuts, tears, punctures, deterioration and abrasion.
2. Seam tapes for proper adhesion.
3. Seam tapes joining tubes to floors, other tubes or canopy for adhesion and wear.
4. Liferaft floor and canopy for cuts, tears, punctures, and abrasions.
5. All patches for proper adhesion.
6. Pockets for tears, abrasions, and security of attachment.
7. Handles for wear, deterioration, and security of attachment.
8. Sea anchor for wear, tears, and security of attachment.
9. Damaged or deteriorated topping-off valve, if applicable, and security of retaining screw.
10. All hardware for security of attachment, corrosion, damage, wear, and, if applicable, ease of operation.
11. Liferaft for stains, dirt, and general cleanliness.
12. Any other parts for wear and damage.

13. Perform functional test in accordance with paragraph 11-22.

11-29. MARKINGS INSPECTION. Compare markings on liferaft and case and/or container to markings shown in [Table 11-3](#) through [Table 11-6](#) as applicable. Restore faded markings. Install/replace inspection record patch as needed; refer to [paragraph 11-56](#). Correct any markings which do not agree with the applicable table. To change markings, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Ink, Marking, Laundry, Black	SPE-92 NIIN 00-161-4229
	-or-	
	Ink, Drawing, Waterproof, Yellow	A-A-59291 NIIN 00-634-6583

1. Paint over incorrect marking using waterproof ink (yellow or black as applicable).

2. Add correct marking as close as possible to specified location using waterproof ink.

11-30. SURVIVAL ITEMS AND ACCESSORIES INSPECTION. To inspect survival items and accessories, proceed as follows:

NOTE

With the exception of batteries, items reaching over-age while packed in survival kits and rafts shall remain in service until the next inspection cycle of the completed assembly.

1. Inventory all accessories and survival items by checking items against [Table 11-7](#). Replace missing or unsatisfactory items.

NOTE

Ensure URT-33 battery service life does not expire prior to the next scheduled calendar inspection. Refer to NAVAIR 16-30URT33-1 for battery service life. Batteries which exceed service life requirements must be discarded regardless of their condition.

2. Inspect all items for damage, spent contents, and expired service life. Replace as necessary.

NOTE

NAVAIR 13-1-6.5 contains information in inspection/replacement and modification of the survival items.

3. Operate all items which are not expended in use. Replace as necessary.

11-31. INFLATION ASSEMBLY INSPECTION. Inspect the inflation assembly as follows:

11-32. Inspection of Inflation Assembly (Charged). To inspect a charged inflation assembly, proceed as follows:

WARNING

Gas under pressure. Do not attempt to remove valve from cylinder.

1. Inspect cylinder markings. Re-mark as required in accordance with [paragraph 11-34](#).

2. Examine inflation assembly for evidence of corrosion, wear, loose screws, and dents. If damage or extensive wear is found, replace valve, cylinder, housing, or pull cable. If pull cable is replaced perform pull cable proof load test in accordance with [paragraph 11-23](#).

NOTE

To obtain the correct gross weight of the CO₂ cylinder, subtract weight of the diffuser plug from total weight indicated on scale.

3. Weight inflation assembly. If weight indicated on scale is not the same as the gross weight printed on the cylinder (P/N MS26545B2C0415, NIIN 00-595-3698) with tolerance specified, or if no gross weight is printed on the cylinder, discharge the cylinder and recharge it to 9.14 to 9.26 lbs in accordance with [paragraph 11-46](#).

WARNING

Inspect safety wire to ensure that wire size and type are as specified in [paragraph 11-47](#).

4. If necessary, safety-wire the assembly in accordance with [paragraph 11-47](#).

Table 11-3. LRU-15/A Liferaft Markings


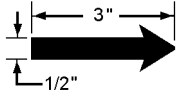

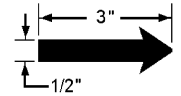

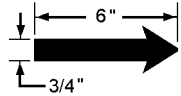
Marking	Location	Letter Height
LIFERAFT, INFLATABLE TWENTY-MAN TYPE LRU-15/A USN 30003/63A80H1- [applicable dash number] MANUFACTURER'S IDENTIFICATION CONTRACT NO. [applicable number] DATE OF MANUFACTURE [month and year] SERIAL NO. [applicable number]	Tube, segment adjacent to cylinder sling, outboard	1 inch
EQUALIZER TUBE-CLAMP SHUT AFTER FLOTATION TUBES ARE INFLATED 	Tube segment adjacent to equalizer tube, inboard*	3/4 inch 
 USE SEA ANCHOR TO REDUCE DRIFT	On tube adjacent sea anchor pocket, inboard*	3/4 inch 
BOARDING RAMP 	1/2-inch below center line of every second tube segment*	3/4 inch 
CLIMB IN HERE, SWIM UP ON RAMP	On tube above each boarding ramp	3/4 inch
TUBE NUMBERS	Starting at carbon dioxide cylinder and working clockwise, number the outboard side of each upper tube segment consecutively from 1 through 12.	1/2 inch
	Starting at carbon dioxide cylinder and working clockwise, number the outboard side of each tube segment consecutively from 13 through 24	1/2 inch
INFLATION VALVE UPPER TUBE	On tube adjacent to topping-off valve*	3/4 inch
INFLATION VALVE LOWER TUBE	On both sides of floor adjacent to topping-off valve*	3/4 inch
HEAVING LINE	On tube adjacent to heaving line pocket*	1/2 inch

Table 11-3. LRU-15/A Liferaft Markings (Cont)

Marking	Location	Letter Height
KEEP ACCESSORIES TIED TO RAFT TO AVOID LOSS IN CASE OF CAPSIZING	On both sides of floor adjacent to floor support tube	3/4 inch
INFLATION VALVE FLOOR SUPPORT	On both sides of floor adjacent to toping-off valve in floor support tube	3/4 inch
CLAMP EQUALIZER TUBE	On both sides of floor adjacent to equalizer clamp pocket	1/2 inch
SHARP ITEMS ON CLOTHING MAY PUNCTURE RAFT	On both sides of floor adjacent to floor support tube	3/4 inch
CYLINDER COVER	Cylinder cover	1/2 inch
INFLATION VALVE OPERATION TO INCREASE TUBE PRESSURE 1. SCREW HAND PUMP INTO VALVE CAP 2. ROTATE VALVE CAP 1 1/2 TURNS TO THE RIGHT 3. PUMP TO INFLATE TO DESIRED PRESSURE 4. ROTATE VALVE CAP 1 1/2 TURNS TO LEFT AND RE- MOVE PUMP TO DECREASE TUBE PRESSURE 1. ROTATE VALVE 1 1/2 TURNS TO RIGHT AND BLEED	On patch located on both sides of floor adjacent to floor support tube	3/8 inch 1/4 inch 3/16 inch 1/4 inch 3/16 inch
SEA ANCHOR MIL-A-3339B Type I Size 3 MANUFACTURER CONTRACT NO. [applicable number] DATE OF MANUFACTURE [month and year]	Inside of sea anchor	1/4 inch
INTERNATIONAL MORSE CODE [see figure 11-2]	Stenciled on both sides of floor adjacent to floor support tube	1/4 inch
BEFORE INFLATION CLIP SNAPHOOK TO LIFE VEST	On a tag attached to webbing retaining line. (Only on the droppable type packaged LRU-15/A configuration.)	3/8 inch

Table 11-3. LRU-15/A Liferaft Markings (Cont)

Marking	Location	Letter Height
<p>AUTHORIZED USE: C-130 TYPE</p> <p>AIRCRAFT WING INSTALLATION ONLY</p> <p><u>REQUIRED BASIC CONFIGURATION</u></p> <p>LRU-15/A LIFERAFT</p> <p>P/N 9153 OR C-50980, VENT MANIFOLD</p> <p>415 CUBIC INCH CO₂ CYLINDER</p> <p>INLET CHECK ELEMENTS HAVE BEEN REMOVED</p> <p>7</p> <p>1/4 (TYP)</p> <p>1/4 (TYP)</p> <p>1/4 (TYP)</p> <p>1/4 (TYP)</p> <p>\$0011003</p>	Upper tube, directly above manifold	As shown
<p>Note: Replacement markings shall be stamped or stenciled using waterproof black ink.</p> <p>*Marking located on both upper and lower tubes.</p>		

Table 11-4. LRU-15/A Case and Container Markings


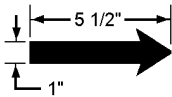
Case/Container	Marking	Location	Letter Height
Carrying Case (wing installation type)	LIFERAFT, TWENTY-MAN LRU-15/A MIL-L-009131G(AS) MANUFACTURERS IDENTIFICATION CONTRACT NO. [applicable number] SERIAL NO. [applicable number] GROSS WEIGHT [stencil applicable number] DO NOT USE THIS CASE ON DROPPABLE TYPE RAFT PACKS	Between handle keepers on one side of carrying case Both sides of carrying case	1 inch 1 inch
	LIFERAFT, TWENTY-MAN LRU-15/A, DROPPABLE USN 30003/63A80H6-1 MANUFACTURERS IDENTIFICATION CONTRACT NO. [applicable number] SERIAL NO. [applicable number] GROSS WEIGHT [stencil applicable number]	Between handle keepers on one side of carrying case	1 inch
Carrying Case (droppable type)	INFLATE AT THIS END 	Both sides of carrying case at pull handle end	1 inch 
	IF VERTICAL STOWAGE THIS END UP	Both sides of case below arrow	1 inch
	INFLATE OTHER END	End panel opposite pull handle end	1 inch
	TO INFLATE, LIFT FLAP, PULL HANDLE OUT UNTIL FREE	Pull handle flap	1/2 inch
Accessory Container (wing installation)	20 MAN LIFERAFT ACCESSORY CONTAINER ASSY FOR WING INSTALLATION IN KC130F AND C130F AIRCRAFT	Main panel	1 inch
Accessory Container (droppable)	TWENTY-MAN RAFT ACCESSORY CONTAINER DROPPABLE MIL-L-009131	Side panel	1/2 inch
Accessory Container (droppable and wing installation)	Each accessory container will be marked with the name of the equipment stored in the container. Refer to table 11-7 .	Main panel	1/2 inch
Note: Replacement markings shall be stamped or stenciled using waterproof black ink.			

Table 11-5. MK-20 Liferaft Markings


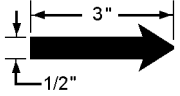

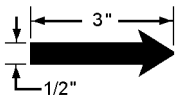

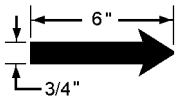
Marking	Location	Letter Height
LIFERAFT, INFLATABLE TWENTY-MAN TYPE MARK 20 USN 30003/63A80H1- [applicable dash number] MANUFACTURER'S IDENTIFICATION CONTRACT NO. [applicable number] DATE OF MANUFACTURE [month and year] SERIAL NO. [applicable number]	Tube, segment adjacent to cylinder sling, outboard	1 inch
EQUALIZER TUBE-CLAMP SHUT AFTER FLOTATION TUBES ARE INFLATED 	Tube segment adjacent* to equalizer tube, inboard	3/4 inch 
 USE SEA ANCHOR TO REDUCE DRIFT	On tube adjacent * sea anchor pocket, inboard	3/4 inch 
BOARDING RAMP 	1/2-inch below center* line of every second tube segment	3/4 inch 
CLIMB IN HERE, SWIM UP ON RAMP	On tube above each boarding ramp	3/4 inch
TUBE NUMBERS	Starting at carbon dioxide cylinder and working clockwise, number the outboard side of each upper tube segment consecutively from 1 through 12.	1/2 inch
	Starting at carbon dioxide cylinder and working clockwise, number the outboard side of each tube segment consecutively from 13 through 24	1/2 inch
INFLATION VALVE UPPER TUBE	On tube adjacent to * topping-off valve	3/4 inch
INFLATION VALVE LOWER TUBE	On both sides of floor* adjacent to topping-off valve	3/4 inch
HEAVING LINE	On tube adjacent to* heaving line pocket	1/2 inch

Table 11-5. MK-20 Liferaft Markings (Cont)


Marking	Location	Letter Height
KEEP ACCESSORIES TIED TO RAFT TO AVOID LOSS IN CASE OF CAPSIZING	On both sides of floor adjacent to floor support tube	3/4 inch
INFLATION VALVE FLOOR SUPPORT	On both sides of floor adjacent to topping-off valve in floor support tube	3/4 inch
CLAMP EQUALIZER TUBE	On both sides of floor adjacent to equalizer clamp pocket	1/2 inch
SHARP ITEMS ON CLOTHING MAY PUNCTURE RAFT	On both sides of floor adjacent to floor support tube	3/4 inch
CYLINDER COVER	Cylinder cover	1/2 inch
<p><u>TO INFLATE TUBES MANUALLY</u></p> <p>ATTACH HAND PUMP TO VALVE CAP, UNSCREW CAP 1 1/2 TURNS TO THE RIGHT, AND THEN PUMP TO INFLATE RAFT. WHEN DESIRED PRESSURE IS ATTAINED, TIGHTEN VALVE CAP AND REMOVE PUMP.</p> <p><u>TO DECREASE PRESSURE</u></p> <p>OPEN VALVE 1 1/2 TURNS TO THE RIGHT AND BLEED</p>	On a white rubber patch located on both sides of floor adjacent to floor support tube	1/4 inch
<p>TO OPEN</p> 	<p>Outer cover patch of* topping-off valve located in tube</p> <p>On both sides of floor adjacent to topping- off valve (without cover patch) located in tube</p>	<p>1/2 inch</p> <p>1/2 inch</p>
INTERNATIONAL MORSE CODE [see figure 11-2]	Stenciled on both sides of floor adjacent to floor support tube	1/4 inch
BEFORE INFLATION CLIP SNAPHOOK TO LIFE VEST	On a tag attached to webbing retaining line. (Only found on liferafts used on the droppable type packaged LRU-15/A configuration.)	3/8 inch

Table 11-5. MK-20 Liferaft Markings (Cont)

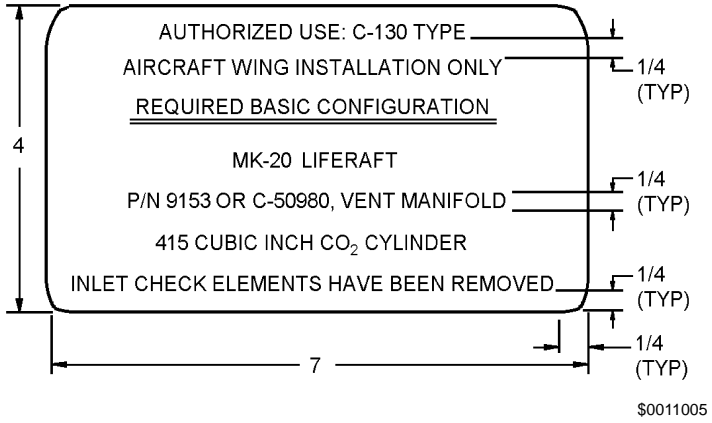
Marking	Location	Letter Height
 <p> AUTHORIZED USE: C-130 TYPE AIRCRAFT WING INSTALLATION ONLY <u>REQUIRED BASIC CONFIGURATION</u> MK-20 LIFERAFT P/N 9153 OR C-50980, VENT MANIFOLD 415 CUBIC INCH CO₂ CYLINDER INLET CHECK ELEMENTS HAVE BEEN REMOVED 7 4 1/4 (TYP) 1/4 (TYP) 1/4 (TYP) 1/4 (TYP) \$0011005 </p>	Upper tube, directly above manifold	As shown
<p>Note: Replacement markings shall be stamped or stenciled using waterproof black ink.</p> <p>*Marking located on both upper and lower tubes.</p>		

Table 11-6. MK-20 Case and Container Markings


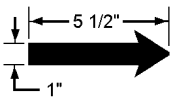
Case/Container	Marking	Location	Letter Height
Carrying Case (wing installation type)	LIFERAFT, TWENTY-MAN MARK 20 SPECIFICATION MIL-L-009131F(WP) MANUFACTURER [applicable number] CONTRACT NO. [applicable number] SERIAL NO. [applicable number] GROSS WEIGHT [stencil applicable number] DO NOT USE THIS CASE ON DROPPABLE TYPE RAFT PACKS	Between handle keepers on one side of carrying case Both sides of carrying case	1 inch 1 inch
Carrying Case (droppable type)	LIFERAFT, TWENTY-MAN MARK 20, DROPPABLE USN SPECIFICATION MIL-L-009131F(WP) MANUFACTURER [applicable number] CONTRACT NO. [applicable number] SERIAL NO. [applicable number] GROSS WEIGHT [stencil applicable number]	Between handle keepers on one side of carrying case	1 inch
Carrying Case (droppable type) (Cont)	INFLATE AT THIS END 	Both sides of carrying case at pull handle end	1 inch 
	IF VERTICAL STOWAGE THIS END UP	Both sides of case below arrow	1 inch
	INFLATE OTHER END	End panel opposite pull handle end	1 inch
	TO INFLATE, LIFT FLAP, PULL HANDLE OUT UNTIL FREE	Pull handle flap	1/2 inch
Accessory Container (wing installation)	20 MAN LIFERAFT ACCESSORY CONTAINER ASSY FOR WING INSTALLATION IN KC130F AND C130F AIRCRAFT	Main panel	1 inch
Accessory Container (droppable)	TWENTY-MAN RAFT ACCESSORY CONTAINER DROPPABLE MIL-L-009131F (WP)	Side panel	1/2 inch
Accessory Container (droppable and wing installation)	Each accessory container will be marked with the name of the equipment stored in the container. Refer to table 11-7 .	Main panel	1/2 inch

Table 11-7. LRU-15/A Survival Items

Description	Quantity Required	Reference Number	NIIN	SM&R Code
<u>Packed In Accessory Container</u>				
Desalter Kit, Sea Water, MK2, Type II (Note 10)	10	MIL-D-5531E	00-372-0592	PAOZZ
Sea Dye Marker	8	MIL-S-17980	00-270-9986	PAOZZ
Distress Signal, MK-124 MOD 0 or Signal Kit MK-189 MOD 0 (Note 8)	10 1	— —	01-030-8330 L564-1370-01-418- 2657	— —
Water Storage Bag (Size A)	7	MIL-B-8571	00-485-3034	PAOZZ
Water, Drinking, Bagged, Emergency (Note 11)		—	01-124-4543	PAOZZ
w/ MROD	20			
w/o MROD	50			
First Aid Kit, Size A	2	SC-C-6545-IL Vol. #2	00-922-1200	—
Desalinator, Manual Reverse Osmosis (Notes 1 and 11)	1	—	01-313-6086	—
Sunburn Preventative Preparation	3	MIL-S-37800	01-121-2336	PAOZZ
Food Packet, Liferaft	20	MIL-F-15381	01-028-9406	PAOZZ
Bailing Sponge	6	L-S-626	00-240-2555	PAOZZ
Hand Pump	2	MIL-P-8258	00-097-4580	PAOZZ
Combat Casualty Blanket Type I	3	MIL-B-36964	00-935-6665	PA—Z
Hand Generated Flashlight A-9 (Note 2)	1	MIL-F-8209	00-283-9806	PAOZZ
Patch, Mechanical (Note 9)	2	P/N 13202E2870-1 (CAGE 81336)	00-720-8864	—
Flare Gun, MK-79 MOD 0 (Note 8)	2	—	00-866-9788	PAOZZ
Signal Light (Strobe) SDU-5/E or Signal Light (Strobe) SDU-39/N	1	MIL-L-38217	00-067-5209 01-411-8535	PAOZZ
Light, ChemiLuminescent	2	95277-80	01-334-4274	PAOZZ
Signal Mirror, Type I (Note 3) or Signal Mirror, Type II	1	MIL-M-18371 MIL-M-18371	00-105-1252 01-455-6695 01-455-6671	PAOZZ PAOZZ PAOZZ
Survival Radio (Notes 4 and 5) and/or Radio Beacon AN/URT-33A (Note 4)	As Required As Required	— MIL-B-38401	— 00-160-2136	— PAOGG
Code Card (Note 6)	1	—	—	—

Table 11-7. LRU-15/A Survival Items (Cont)

Description	Quantity Required	Reference Number	NIIN	SM&R Code
Whistle, Type II	1	MIL-W-1053	00-254-8803	PAOZZ
Compass, Pocket, Type MC-1 (Note 7) or Compass, Wrist	1 1	MIL-C-17850 WCC-100	00-515-5637 00-809-5252	PAOZZ PAOZZ
Pocket Knife	1	MIL-K-818C	00-162-2205	PAOZZ
Cord, Nylon, Utility, 50 feet	1	MIL-C-5040	00-240-2154	PAOZZ
<p>NOTES: 1. MROD shall be used in lieu of the Type I mirror (small) until stock of the Type II mirror is depleted. (See Note 1).</p> <p>2. Required for Arctic missions; optional otherwise.</p> <p>3. The Type II mirror (large) shall be utilized in lieu of the Type I mirror (small) until stock of the Type II mirror is depleted.</p> <p>4. Survival radio or radio beacon requirements shall be in accordance with OPNAVINST 3710.7 Series. Following radios apply: Voice-Beacon: AN/PRC-90, AN/PRC-90-2, and AN/PRC-149, Beacon only: AN/URT-33, AN/PRT-5, and AN/PRC-140. The AN/PRC-149 will become the preferred radio when available.</p> <p>5. Ensure battery service life does not expire prior to next scheduled special inspection. Refer to the applicable manual for the installed radio for battery service life.</p> <p>6. Refer to NAVAIR 13-1-6.5.</p> <p>7. Use MIL-C-17850 until stock is depleted, then use WCC-100.</p> <p>8. MK-189 MOD 0 Signal Kit contains 6 MK-124 Day/Night flares and 2 MK-79 MOD 0 flare guns.</p> <p>9. Patch, mechanical, is made in accordance with MS27826-1 size 3 7/8 inches by 2 1/2 inches.</p> <p>10. Authorized for use in Arctic/Antarctic environments.</p> <p>11. MROD should not be used where water temperatures are below 36°F.</p>				

11-33. Inspection of Inflation Assembly (Discharged). To inspect a discharged inflation assembly, proceed as follows:

1. Inspect cylinder markings. Re-mark as required in accordance with paragraph 11-34.

2. Check date of last hydrostatic test. If greater than 5 years, see paragraph 11-43 for disposition.

3. Examine inflation assembly for evidence of corrosion, wear, loose screws, and dents. If damaged or extensive wear is found, replace valve, cylinder, housing, or pull cable. If pull cable is replaced, perform pull cable proof load test in accordance with paragraph 11-23.

4. Recharge assembly in accordance with paragraph 11-46.

11-34. Cylinder Markings. All CO₂ inflation cylinders shall be in black letters 1/4 inch high. Information shall include gross weight, tare weight, and weight of CO₂. In addition, multiplace liferaft cylinders shall be marked with the following information in 1 inch red letters: WARNING - COMPRESSED GAS - DO NOT DROP. Paint and stencil cylinder as required. Weight of CO₂ is 9.14 to 9.26 lbs. Ensure that all markings are included as necessary.

11-35. LEAKAGE TEST. To perform a leakage test, proceed as follows:

CAUTION

Liferaft should not be disturbed during leakage test.

11-36. Test Fixture. As assembled, test fixtures are not stocked in the Supply System; test fixtures must be fabricated to meet the requirements of the schematic shown in [figure 11-4](#). A suggested test fixture consisting of a three, way valve, pressure gage, and suitable adapters for the compartments being tested is shown in [Chapter 3](#).

11-37. Test Procedure. To test liferafts for leakage using test fixture in [Chapter 3](#), proceed as follows:

CAUTION

Ensure that area surrounding liferaft is clear of foreign objects.

1. Ensure that manifold inlet is capped ([paragraph 11-26, step 2](#)) or an empty cylinder is installed, and ensure that manifold vent is in closed position, indicated by vent/shut poppet in up position.

NOTE

Refer to [table 11-8](#) for information regarding inflation pressure and listing of compartments which may be tested simultaneously.

2. Install equalizer tube clamp.

CAUTION

If three-way valve is not used, measuring device valve must be closed when air-feed valves are open.

NOTE

If a suitable air source is not available, water-pumped nitrogen (BB-N-411) may be substituted.

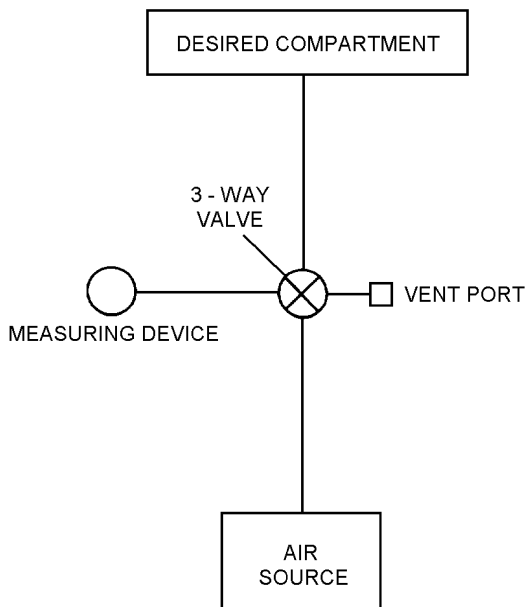


Figure 11-4. Test Fixture Schematic

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3. Open topping-off valve then thread adapter into topping-off valve threads. Open air supply valve and inflate liferaft. Alternately position valve at measuring device, vent and air supply until proper pressure is attained. Refer to [table 11-8](#).

4. The air supply shall be securely shut off and after a minimum of 15 minutes, the pressure shall be readjusted, if necessary, to the leakage test pressure. Refer to [table 11-8](#).

5. Disconnect air supply and check for leaks. Ensure that all valves are closed. Record time.

6. Coat area where manifold enters liferaft at Y-connections with soap solution and wiggle manifold assembly. Observe for signs of leakage. If any leak is noted, the liferaft shall be considered beyond repair.

7. Record temperature and barometric pressure and allow raft to remain undisturbed for a minimum of 4 hours.

Table 11-8. LRU-15/A Liferaft Test Pressure

LRU-15/A Compartment	Leakage Test Pressure (psig)	Minimum Pressure (psig)
*Upper Tube	3.0	2.60
*Lower Tube	3.0	2.60
*Floor Support Tube	2.0	1.60
*Compartments may tested simultaneously.		

NOTE

If the raft has been stacked during the 4-hour inspection period remove from stacking and place in a horizontal position on the floor or table in the inspection area and take test pressure reading. In no event shall the pressure in the raft be determined with another raft stacked upon it.

8. At the end of a minimum of 4 hours after the readjustment period in [step 5](#) record test pressure.

NOTE

Steps 9 through 21 shall be performed only after leakage test readings have been recorded.

9. Record temperature and barometric pressure and correct test pressure for any changes in temperature and barometric pressure. Refer to [tables 11-9](#) and [11-10](#).

EXAMPLE

UNCORRECTED TEST READING 1.70 PSI

	TEMP.	BARO.
START	75° F	29.90 IN. Hg
END	70° F	29.70 IN. Hg
DIFFERENCE	- 5° F	-0.20
CORRECTION	+0.155	-0.098

TEMP. CORRECTION	+ 0.155
+ BARO. CORRECTION	- 0.098
CORRECTION	+ 0.057

UNCORRECTED READING	1.700 PSI
+ CORRECTION	+ 0.057
CORRECTED READING	1.757 PSI

K0037009

Step 9 - Para 11-37**Table 11-9. Temperature Conversion Chart**

Temperature Difference (Degree F)	Correction (psi)
1	0.031
2	0.062
3	0.093
4	0.124
5	0.155
6	0.186
7	0.217
8	0.148
9	0.279
10	0.310
Rise in temperature: subtract from gage reading. Fall in temperature: add to gage reading.	

10. If pressure of compartment is below pressure limits in [table 11-8](#), inflate to leakage test pressure and check for leaks, using a soap solution. Mark leaks, rinse with fresh water, and dry with a lint free cloth. Determine repairability in accordance with [paragraph 11-51](#).

11. Remove equalizer clamp and stow in pocket.

12. Apply a small amount of soap solution to manifold, and inspect for leaks. Inspect for damage, excessive wear and corrosion.

13. Apply a small amount of soap solution around topping-off valve and check for leaks.

14. To verify that inlet check elements have been removed from inlet valves, depress manifold poppet and ensure that air escapes. (If air does not escape, refer to [paragraph 11-69](#) for the removal of inlet check elements and for the fabrication of an identification patch.) Reclose vent. Vent shall remain closed until liferaft is installed in aircraft wing compartment.

Table 11-10. Barometric Pressure Conversion Chart

Press. Diff. (inHG)	Corr. (psi)	Press. Diff. (inHG)	Corr. (psi)	Press. Diff. (inHG)	Corr. (psi)	Press. Diff. (inHG)	Corr. (psi)	Press. Diff. (inHG)	Corr. (psi)
0.01	0.005	0.16	0.078	0.31	0.152	0.46	0.225	0.61	0.299
0.02	0.010	0.17	0.083	0.32	0.157	0.47	0.230	0.62	0.304
0.03	0.015	0.18	0.088	0.33	0.162	0.48	0.235	0.63	0.309
0.04	0.020	0.19	0.093	0.34	0.167	0.49	0.240	0.64	0.314
0.05	0.025	0.20	0.098	0.35	0.172	0.50	0.245	0.65	0.319
0.06	0.030	0.21	0.103	0.36	0.176	0.51	0.250	0.66	0.323
0.07	0.035	0.22	0.108	0.37	0.181	0.52	0.254	0.67	0.328
0.08	0.040	0.23	0.113	0.38	0.186	0.53	0.260	0.68	0.333
0.09	0.045	0.24	0.118	0.39	0.191	0.54	0.265	0.69	0.338
0.10	0.049	0.25	0.123	0.40	0.196	0.55	0.270	0.70	0.343
0.11	0.054	0.26	0.127	0.41	0.201	0.56	0.275	0.71	0.348
0.12	0.060	0.27	0.132	0.42	0.206	0.57	0.279	0.72	0.353
0.13	0.064	0.28	0.137	0.43	0.211	0.58	0.284	0.73	0.358
0.14	0.069	0.29	0.142	0.44	0.216	0.59	0.289	0.74	0.363
0.15	0.073	0.30	0.147	0.45	0.221	0.60	0.294	0.75	0.368
Rise in pressure: add to gage reading. Fall in pressure: subtract from gage reading.									

15. Deflate liferaft in accordance with paragraph 11-25.

16. (All Droppable LRU-15/A Liferafts Except LRU-15/A Droppable, Remote Pull) Attach retaining line to neck of cylinder with a bowline knot. Safety tie bowline knot with one turn of size E thread.

17. (LRU-15/A with Manifold) Remove manifold cap or empty cylinder. Rotate manifold coupling nut and check for freedom of movement to ensure that inner locking ring is not binding.

18. (LRU-15/A with Manifold) Ensure that nylon gasket (P/N 1106AS108-3) is not wedged in port between manifold and CO₂ cylinder.

19. Install cylinder valve anti-chafing sleeve.

20. Reinstall properly charged inflation assembly.

21. Tighten coupling nuts to cylinder valve and Y-valve to raft inlet valves to a torque value of 140 to 150 in-lb.

22. Lace cylinder sling closed and snap cover over lacing where applicable.

11-38. RECORDS UPDATING. Make necessary entries on appropriate form in accordance with OPNAV-INST 4790.2 Series.

11-39. CLEANING AND SERVICING.

11-40. Cleaning and servicing consists of cleaning the liferaft and containers and/or cases, checking hydrostatic test date on multiplace liferaft CO₂ cylinders, replacement of poppet assembly, replacing the safety disc and washer on inflation valves, recharging CO₂ cylinders and safety-wiring inflation valves.

11-41. CLEANING OF LIFERAFTS. To clean liferafts, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Detergent, General Purpose	MIL-D-16791 NIIN 00-282-9699
As Required	Cloth, Lint-Free, Type II	MIL-C-85043 NIIN 00-044-9281
As Required	Talc, Technical	MIL-T-50036A NIIN 01-080-9589



Solvents are not to be used in the cleaning of liferafts.

1. Prepare solution of detergent (MIL-D-16791) consisting of 1/4 to 1/2 ounce of detergent per gallon of water.

2. Apply cleaning solution to soiled area with a spray or sponge.

3. Allow solution to remain on the surface for several minutes, then agitate with a soft brush or rag.

4. Rinse surface thoroughly with water; wipe with a cloth or sponge. Repeat this application until surface is free from all solution.

5. Dry liferaft with a lint-free cloth and apply a light coating of talc.

11-42. CLEANING OF CONTAINERS AND/OR CASES. Clean in accordance with [paragraph 11-41](#).

11-43. HYDROSTATIC TEST. Inspect CO₂ cylinders used on multiplace liferafts to determine if the previous hydrostatic test was within the last five years. However, a fully charged cylinder (charged to the cylinder gross weight) is considered serviceable, regardless of the last hydrostatic test date, until discharged. If over five year due date for testing, and cylinder has been discharged, proceed with hydrostatic test:

WARNING

Wire-wrapped cylinders must have wire-wrapping removed prior to hydrostatic testing; cylinders passing the hydrostatic test must be rewound prior to placing back in service.

Wire-wrapped cylinders must have letter W at end of part number. Cylinders received without the W at end of part number do not require wire-wrapping.

Materials Required

Quantity	Description	Reference Number
1	Washer, Sealing	A128-13 (CAGE 34009) NIIN 00-159-2599
	-or-	
1	Parts Kit, Valve	ASV710 (CAGE 34009) NIIN 00-999-7662

NOTE

Ensure that all CO₂ cylinders received from Supply, except those used on one-man liferafts, have siphon tubes installed.

1. Disconnect the cylinder and valve assembly from the raft. Remove and retain valve for the replacement cylinder.

2. Mark appropriate form "Hydrostatic Test Required" in accordance with OPNAVINST 4790.2 Series and return old cylinder to Supply.

NOTE

Ensure that all CO₂ cylinders received from Supply, except those used on one-man liferafts, have siphon tubes installed.

3. Obtain a replacement cylinder. Before installing valve on cylinder, gently tap inverted cylinder with a small piece of wood. If any rust or other contamination falls from cylinder, do not use that cylinder; draw another cylinder and repeat contamination check.

4. Check for installation of siphon tube.

5. Replace stem in inflation assembly valve if necessary.

- 6. Install a new sealing washer.
- 7. Thread inflation valve onto cylinder and tighten to a torque value of 165 to 175 ft-lb.
- 8. Charge cylinder and reconnect valve and cylinder to liferaft as appropriate.

11-44. INSPECTION/REPLACEMENT OF INFLATION VALVE POPPET ASSEMBLY. If leakage of CO₂ is from valve discharge port, inspect the valve poppet (P/N ASV-601, NSN 4220-00-507-6667) for worn seat as follows:

WARNING

Before performing any work on inflation valves, ensure that CO₂ inflation assemblies are completely discharged. Do not remove valve from a charged CO₂ assembly.

Materials Required		
Quantity	Description	Reference Number
1	Washer, Sealing	A128-13 (CAGE 34009) NIIN 00-159-2599
1	-or- Parts Kit, Valve	ASV 710 (CAGE 34009) NIIN 00-999-7662
1	Valve Poppet Assembly	P/N ASV-601, NIIN 00-507-6667

- 1. Remove cylinder from liferaft.
- 2. Remove valve from cylinder.
- 3. Disassemble valve ([Figure 11-5](#)) and inspect poppet for worn seat. Replace poppet assembly if necessary.
- 4. Install a new sealing washer.
- 5. Thread inflation valve onto cylinder and tighten to a torque value of 165 to 175 ft-lb.

11-45. REPLACEMENT OF SAFETY DISC AND WASHER ON INFLATION VALVES. (See [figure 11-6.](#)) To replace safety disc and washer on inflation valve assemblies (A-128/871444/IV0303) proceed as follows:

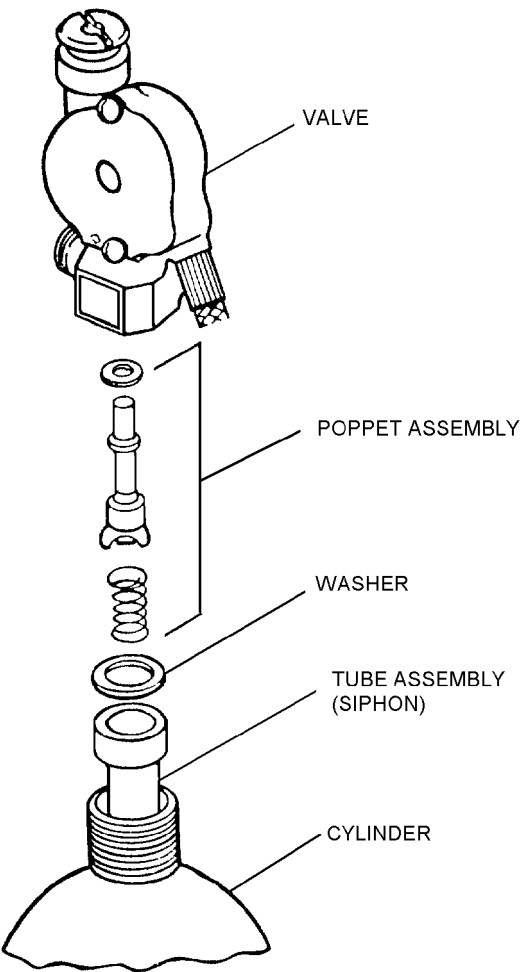


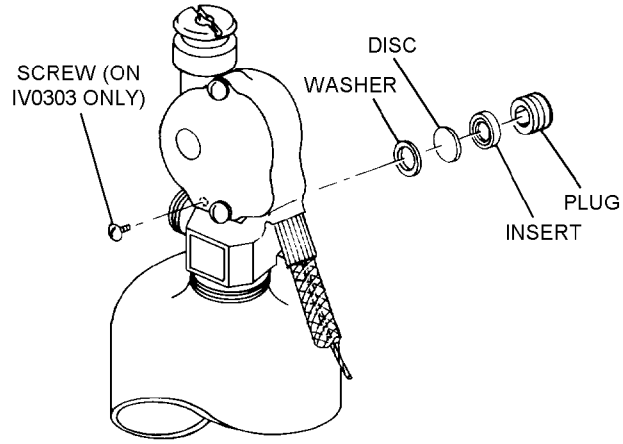
Figure 11-5. Valve Poppet Disassembly

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Support Equipment Required		
Quantity	Description	Reference Number
1	Wrench, Torque	—
1	Socket, 5/16 inch	—

WARNING

Before performing any work on inflation valves, ensure that CO₂ inflation assemblies are completely discharged. Do not remove valve or valve safety disc plug from a charged CO₂ assembly.



INFLATION VALVE
P/N A-128, P/N 871444, P/N IV0303

10110006

Figure 11-6. Disassembly of Inflation Valve Safety Disc Assembly

Materials Required

Quantity	Description	Reference Number
1	Repair Kit (Insert, Washer, Disc)	903684 (CAGE 33525) NIIN 00-703-7811
1	Hex Stock, 5/16 x 12 inch Length	

1. Remove cylinder from liferaft.
2. Remove safety disc plug; insert safety disc and washer.
3. Place new washer into inflation valve safety disc orifice.
4. Place new safety disc into inflation valve safety disc orifice.
5. Replace insert and safety disc plug.

NOTE

While tightening the safety disc plug, align insert with plug.

6. Tighten safety plug to 29 ft-lb of torque.

11-46. RECHARGING. To recharge the inflation assembly, proceed as follows (see [figure 11-7](#)):

WARNING

Bottles should be turned in for testing as close to due date as possible. Extending hydrostatic testing by leaving bottle charged may result in corrosion build up on inside of cylinder, which may cause a malfunction during actuation.

When discharging partially charged or overcharged CO₂ cylinders, hold firmly in place with a suitable holding device (vice). Protect CO₂ cylinder from vice jaws with cloth or a suitable substitute. Position cylinders so escaping gas is not directed toward any personnel.

NOTE

Inspect CO₂ cylinders for multiplace life-rafts before recharging. Refer to [paragraph 11-33](#).

Charged inflation assemblies used as spare replacements shall be inspected in accordance with [paragraph 11-32](#) prior to raft installation.

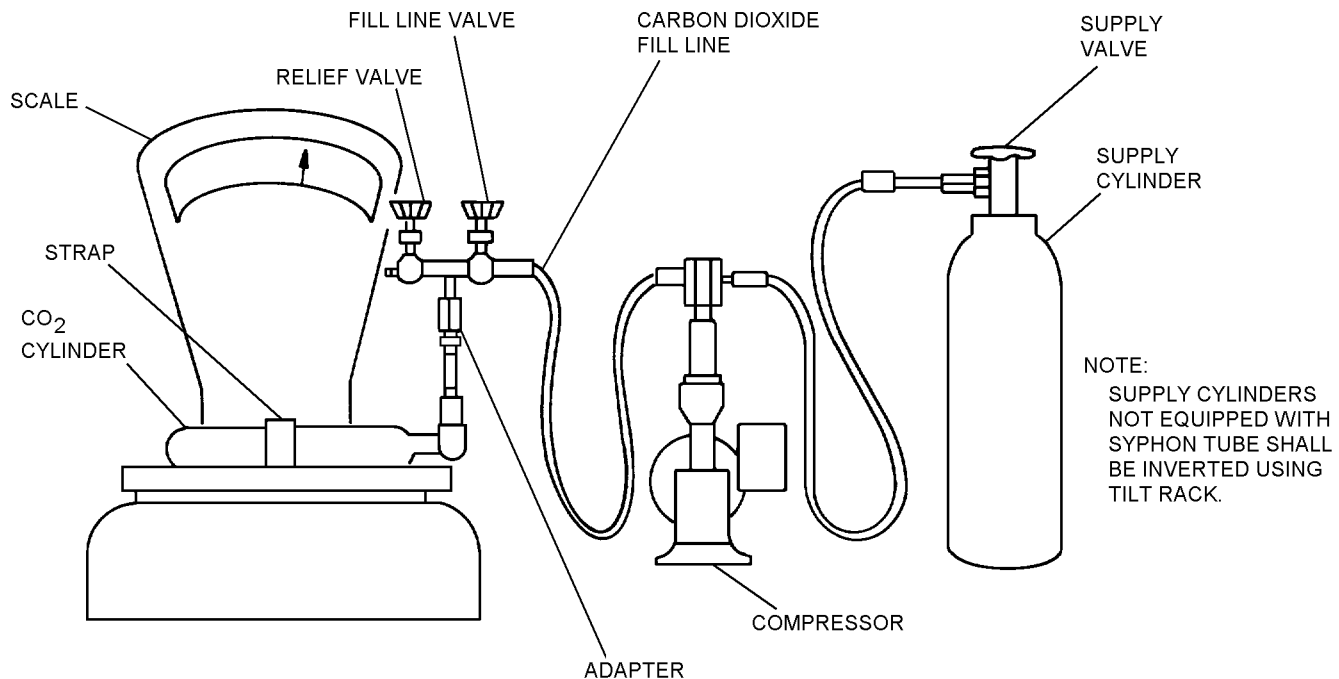
To perform the following filling procedures it is necessary to ensure that CO₂ cylinder is completely discharged.

1. Remove inflation valve cover and rotate cam with screwdriver to open position.
2. Weigh and record tare weight (empty weight cylinder, valve and cable assembly) of inflation assembly. Correct tare weight marking on cylinder if necessary.

NOTE

Supply cylinders not equipped with siphon tube must be inverted during transfer operation. Inverting cylinder allows the liquid to flow from the valve. Supply cylinders with siphon tube (straight pipe) extending from the valve to the bottom of the cylinder can be emptied in the vertical position.

3. Install proper charging adapter on inflation assembly.
4. Secure inflation assembly to weighing pan.
5. Open supply cylinder valve, fill line valve and relief valve to purge fill line. Close fill line valve and relief valve.



10110007

Figure 11-7. Recharging Schematic

NOTE

Ensure fill line is free from contact with any object along entire distance from compressor to charging adapter. If fill line does not hang free, accurate weight readings cannot be obtained.

6. Connect fill line to inflation assembly and zero scale.

NOTE

Proper charge weight is 9.14 to 9.26 lbs.

7. Ensure inflation assembly valve is open.

8. Open fill line valve.

9. Allow carbon dioxide to cascade from supply cylinder into inflation assembly. If gross weight (tare weight plus 9.14 to 9.26 lbs) cannot be reached, start compressor and complete charging. Stop compressor upon reaching proper gross weight.

10. Close fill line valve.

11. Close inflation assembly valve. Open relief valve on fill line valve if applicable.

12. Disconnect fill line from inflation assembly. Remove charging adapter.

13. Measure gross weight of charged inflation assembly.

14. If gross weight of inflation assembly is greater than required, carefully bleed off excess from inflation assembly. If gross weight is less than required, reinstall charging adapter and repeat [steps 5 through 14](#).

15. Reinstall diffuser plug, if applicable.

NOTE

When other cylinders are to be recharged immediately, leave supply cylinder valve open.

16. Close supply and bleed system pressure.

NOTE

Remove cover plate on multiplace liferaft valve assemblies.

17. Immerse inflation assembly in water tank.



If inflation valve leaks from discharge port, inspect inflation valve poppet assembly in accordance with [paragraph 11-44](#).

18. Check for leaks; then remove assembly from tank and dry with an air blast. Wipe assembly with a lint-free cloth.

NOTE

After storage period, inflation assembly should be checked for proper weight.

19. If required, re-mark tare weight, gross weight, charge weight on cylinder.

20. Safety-wire the assembly in accordance with paragraph 11-47.

11-47. SAFETY-WIRING. To safety-wire the inflation assembly, proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Torque Meter	—
1	Special Socket	—
1	Dial Push/Pull Gage	DPPH50 (CAGE 11710) or equivalent NIIN 00-473-0108

WARNING

To ensure that proper safety wire is used on liferaft inflation assemblies, a tensile strength test shall be performed on a sample of wire from each spool intended for this use prior to using.

Materials Required

Quantity	Description	Reference Number
As Required	Wire, Aluminum, 0.032 inch Diameter, Temper 0	QQ-A-225/1 NIIN 00-595-8200
2	Screw, Brass	MS35273-2 NIIN 00-720-8657
2	Washer, Lock	MS35333-10 NIIN 00-011-5551
As Required	Seal, Lead	NIIN 00-598-3427
1	Pin, Steel	—

1. Secure one end of a 12-inch sample of aluminum wire (0.032-inch diameter) to a stationary support.

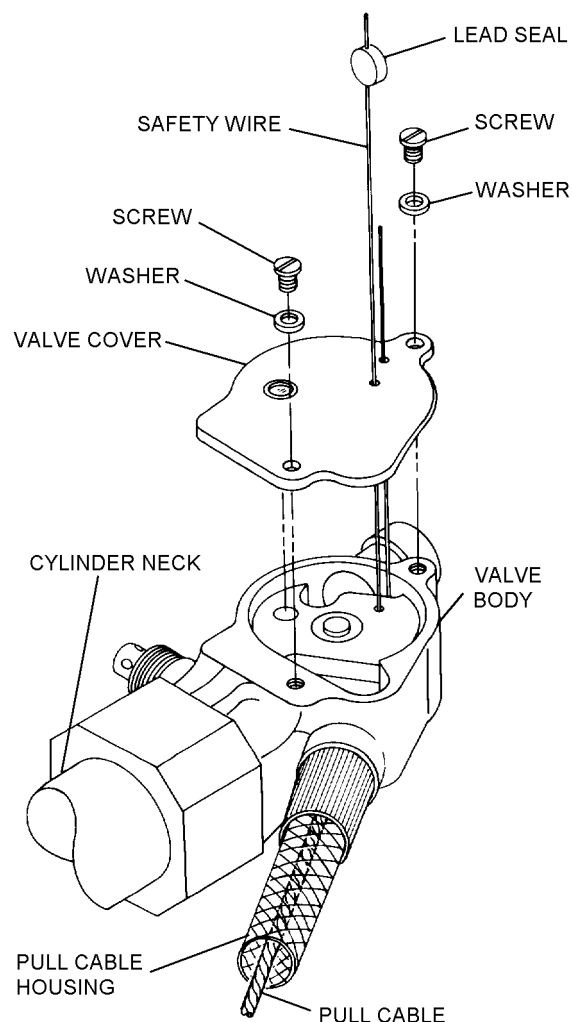
2. Attach opposite end to pull scale; then apply a pull force.

3. Remove valve cover plate and ensure correct routing of pull cable. See [figure 11-8](#).

NOTE

Ensure that pull cable used for multiplace liferafts has been proof load tested IAW [paragraph 11-23](#).

4. Route safety wire as shown. Use 0.032-inch diameter aluminum wire.



TYPICAL INSTALLATION OF SAFETY WIRE

Step 4 - Para 11-47

K0047004

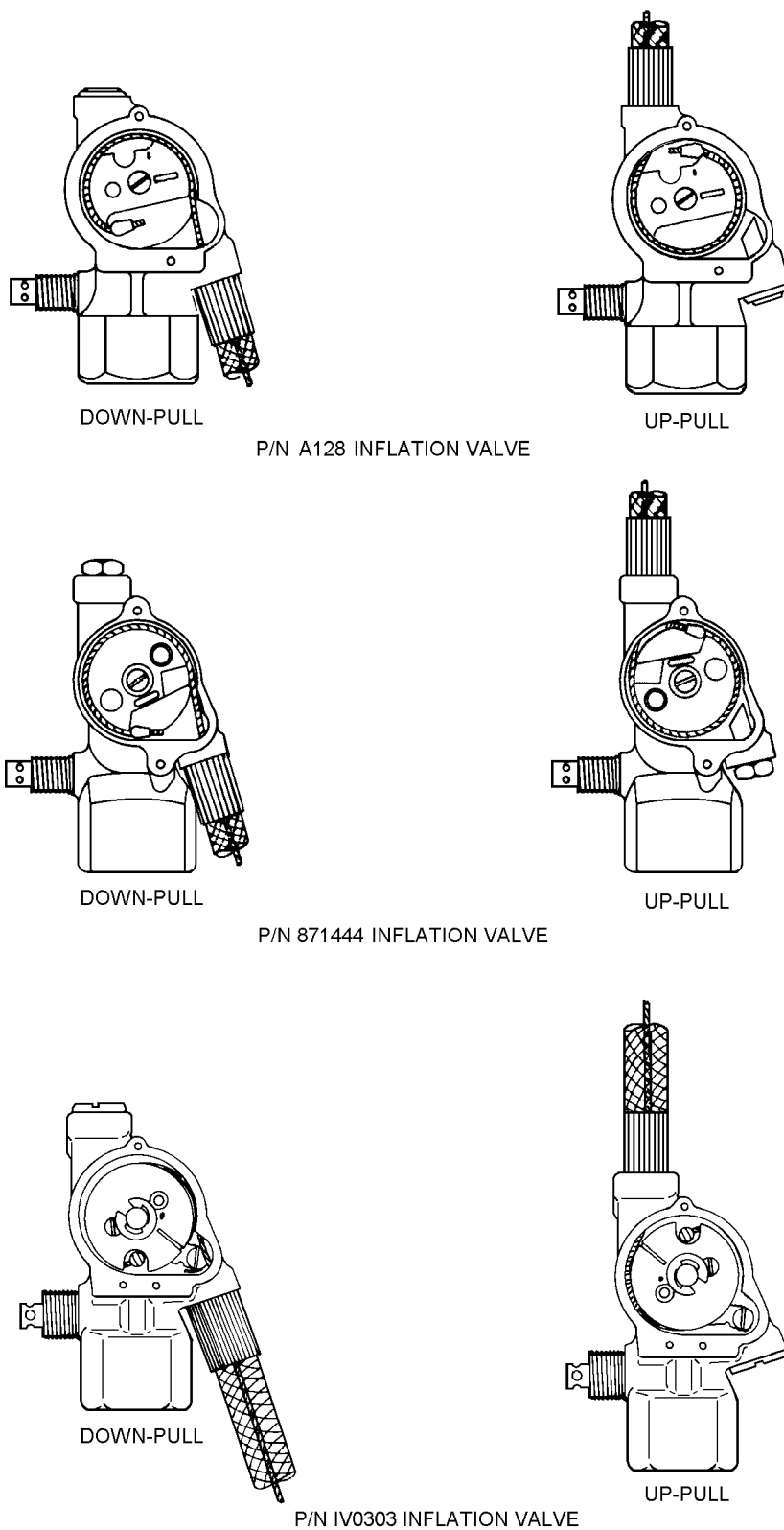


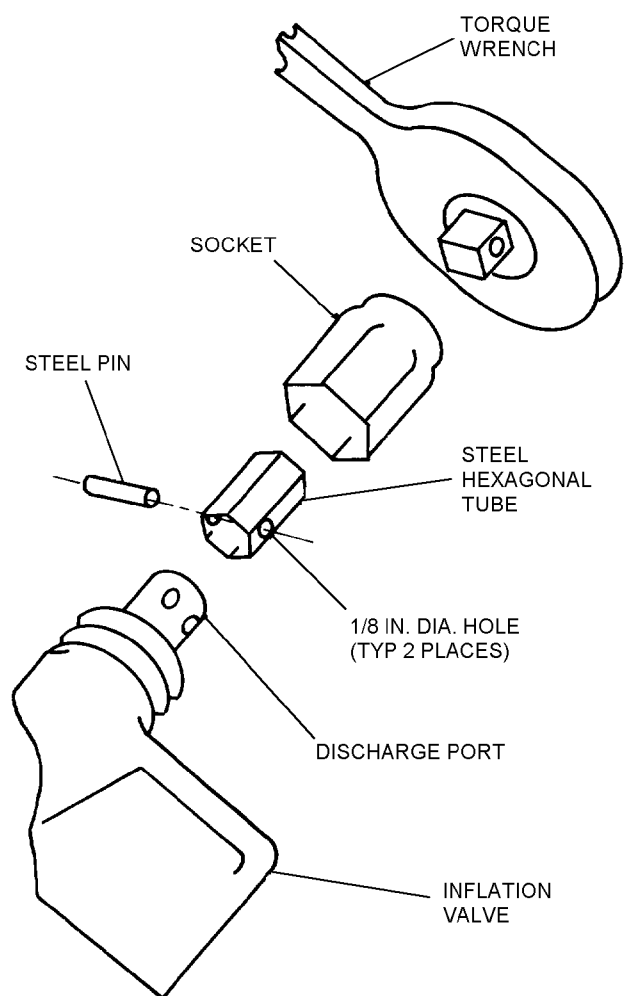
Figure 11-8. Routing of Multiplace Liferaft Pull Cable

10110008

5. Replace valve cover. Twist ends of safety wire to achieve maximum tautness and crimp lead seal. Ensure that pull cable is properly installed. Green dot should be visible in valve cover window.

6. Examine inflation valve to ensure the presence of screw and lockwasher.

7. Tighten discharge port to a torque valve of 60 ± 5 in-lb.

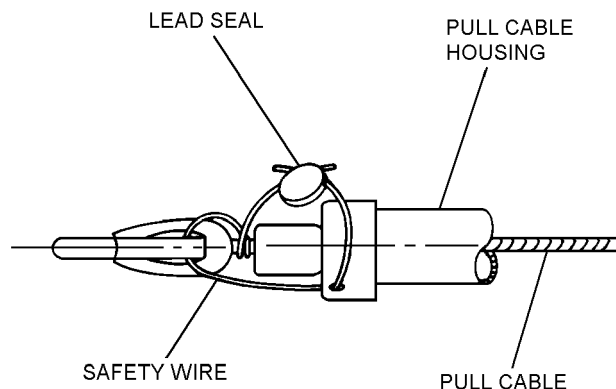


Step 7 - Para 11-47

NOTE

Multiplace liferafts used in aircraft wing compartments shall be safety-wired according to applicable aircraft maintenance instructions.

8. Safety-wire pull cable to pull cable housing as shown. Use 0.032-inch diameter aluminum wire on all liferafts.



TYPICAL REMOTE PULL CABLE SAFETY WIRING

K0047008

Step 8 - Para 11-47

9. If inflation assembly is to be stored, attach a red tag with the following instructions printed in ink: **WARNING: WEIGH INFLATION ASSEMBLY BEFORE INSTALLING ON LIFERAFT. DO NOT INSTALL IMPROPERLY CHARGED CYLINDER OR IMPROPERLY SAFETY-WIRED INFLATION VALVE.**

11-48. REPAIRS/REPLACEMENT.

11-49. This section contains instructions for the repair or replacement of various components or subassemblies of the LRU-15/A liferaft to ensure that appropriate items of equipment remain in Ready For Issue (RFI) status. Reference numbers for minor parts which are defective, corroded or worn and require replacement are included in the applicable paragraph of this section. Otherwise, refer to [Section 11-4](#). All repairs shall be documented by making necessary entries on appropriate form in accordance with OPNAV-INST 4790.2 Series.

11-50. Replacement of easily removed assembly components such as CO₂ inflation valves are authorized in addition to repair and replacement procedures documented in this section. The liferaft shall be sub-

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jected to a functional and leakage test each time CO₂ inflation valves are removed and replaced for any reason, and each time inflation valve gaskets are replaced.

11-51. DETERMINATION OF REPAIRABILITY. Liferafts shall be considered beyond repair for any of the following reasons:

- 1. Porous fabric areas on tubes.
- 2. Split or open tube seams.
- 3. Leakage test failure resulting from other than cut, tear, or puncture.
- 4. Damaged, malfunctioning, excessively worn, or corroded inlet valve, manifold assembly or oral inflation tube, as applicable.
- 5. Damaged, malfunctioning, or excessively corroded topping-off valve that cannot be corrected by replacement of topping-off valve opening insert and washer.
- 7. Extensively damaged floor.
- 8. Holes or abrasions exceeding 2 inches in length or diameter in pneumatic compartment.
- 9. Deterioration of the rubberized fabric caused by oil, grease, or any other foreign substance.
- 10. Deterioration of the rubberized fabric caused by a heavy mildewed condition.
- 11. Opening of air retaining seams for internal repair.
- 12. Rips, tears, or punctures in the pneumatic compartments which exceed 2 inches.
- 13. In the judgement of a competent inspector, requiring excessive repair.

11-52. CEMENTING LIFERAFTS. All cementing of liferafts shall be performed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Roller, Wooden	GGG-R-00620 NIIN 00-243-9401

Materials Required

Quantity	Description	Reference Number
1	Disposable Brush	NIIN 00-514-2417
As Required	Toluene	TT-T-548 NIIN 00-281-2002
-or-		
As Required	Methyl Ethyl Ketone, (MEK)	TT-M-261 NIIN 00-281-2762
As Required	Adhesive, Class 3, Polychloroprene	MIL-A-5540 NIIN 00-142-9913
As Required	Talc, Technical	MIL-T-50036A NIIN 01-080-9589



Do not use toluene or MEK near open flames, heat or electrical sparks. Avoid prolonged contact with skin or breathing of fumes. Use only in well-ventilated area.



Use only Polychloroprene adhesive and Polychloroprene-coated cloth and patches on Polychloroprene-coated LRU-15/A Liferaft assemblies.

NOTE

Toluene shall be the primary solvent used in the fabrication or repair of this assembly. MEK may be used if toluene is not available. Always use solvents sparingly and wipe up excess solvents; do not allow to dry by evaporation.

Toluene or MEK must be applied vigorously to liferaft material over three years old in order to reactivate the material prior to cementing. Pigment from the material coloring staining a cloth rubbed over the treated surface will indicate the material has been reactivated. Adhesive shall be applied immediately after the surface has dried.

1. Clean both surfaces to be cemented with four applications of toluene or MEK. Apply toluene or MEK with back-and-forth strokes on the first and third applications, and one-way strokes on the second and fourth applications. Allow areas to dry between applications.

2. Prepare cement and accelerator mixture. Prepare only enough mixture for 8 hours, as this is the effective active period for the mixture. Dispose of any remaining mixture at this time.

3. Using a disposable brush, apply adhesive to completely cover surfaces to be cemented. Use long one-directional strokes and complete each surface before adhesive becomes tacky as the brush may pull tacky adhesive from the surface. Allow to dry for ten minutes.

4. Apply a second coat of adhesive as in [step 3](#). Use brush strokes perpendicular to the original direction.

5. When second coat of adhesive has become tacky, place pieces together. If cemented area is a cut or tear, butt edges of damage before applying patch. Roll out bubbles with a wooden roller.

6. Allow adhesive to cure a minimum of 48 hours.

7. Dust area with talc.

11-53. PATCHING LIFERAFTS. To patch inflatable survival equipment, select color to approximately match item to be patched, and proceed as follows:

Materials Required		
Quantity	Description	Reference Number
As Required	Cloth, Laminated, Var. D, Blue	MIL-C-23070 NIIN 00-132-5009
-or-		
	Cloth, Laminated, Var. C, Orange	MIL-C-23070 NIIN 00-081-5829

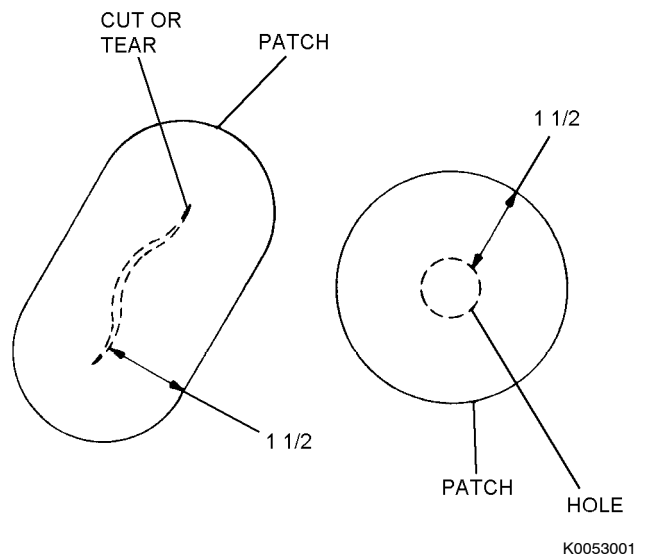
Materials Required (Cont)

Quantity	Description	Reference Number
-or-		
	Cloth, Laminated, Var. C, Yellow	MIL-C-23070 NIIN 00-926-6489



Use only Polychloroprene adhesive and Polychloroprene-coated cloth and patches on Polychloroprene-coated LRU-15/A Liferaft assemblies.

1. Cut a rounded patch 1 1/2 inches larger than the damage on all sides.



Step 1 - Para 11-53

2. Scallop edges of patch if it is larger than 5 inches in diameter.

- 3. If damaged area in floor is larger than 1 inch, patches shall be applied to both sides.
- 4. Center patch over damage and trace on outline of patch on fabric.
- 5. Cement patch to damaged area in accordance with [paragraph 11-52](#).
- 6. Dust area with talc.
- 7. Perform a leakage test.

11-54. RECEMENTING OR REPLACING SEAM TAPES. This repair shall be performed only if a flotation tube does not leak, that is, if only the outer seam tape is loose, or if the seam does not seal a flotation tube. To recement or replace a seam tape, proceed as follows:

Materials Required		
Quantity	Description	Reference Number
As Required	Tape, Rubberized, Var. T (Specify Color) 1 1/4 inch width	—
As Required	Toluene	TT-T-548 NIIN 00-281-2002
	-or-	
	Methyl Ethyl Ketone (MEK)	TT-M-261 NIIN 00-281-2762
As Required	Talc, Technical	MIL-T-50036A NIIN 01-080-9589

NOTE

Seam separation in floors and seats may be repaired provided safety and flotation capabilities are not compromised. Exercise sound judgement in determining whether such repairs are within local capabilities. All cementing shall be performed in accordance with [paragraph 11-52](#).

- 1. If tape is present and undamaged, recement tape to liferaft.
- 2. If tape is missing, measure and fit a replacement tape to area and cement in place. Overlap other seams a minimum of 1 inch.

WARNING

Do not use toluene or MEK near open flame, heat, or electrical sparks. Avoid prolonged contact with skin or breathing of fumes. Use only in well-ventilated area.

NOTE

Toluene shall be the primary solvent used in the fabrication or repair of this assembly. MEK may be used if toluene is not available. Always use solvents sparingly and wipe up excess solvents; do not allow to dry by evaporation.

- 3. If tape is damaged, peel damaged tape from liferaft. Apply toluene or MEK only as needed to loosen tape. Trim damaged tape and replace with new tape. Overlap other seam tape a minimum of 1 inch.
- 4. Perform leakage test.

11-55. SEA ANCHOR/MOORING LINE REPLACEMENT. To replace worn or damaged sea anchor or mooring line, proceed as follows:

Materials Required		
Quantity	Description	Reference Number
1	Sea Anchor, Type I, Size 3	MIL-A-3339
As Required	Cord, Nylon Type III	MIL-C-5040 NIIN 00-240-2146

- 1. (Complete Assembly Replacement) Secure free end of mooring line to survivor holding handle nearest sea anchor pocket with bowline knot followed by an overhand knot.
- 2. (Mooring Line Replacement Only) Sear both ends of a 26-foot length of MIL-C-5040 Type III nylon cord. Secure one end to sea anchor bridle, and other end to survivor holding handle nearest sea anchor pocket with bowline knot followed by an overhand knot.

■ 11-56. INSPECTION RECORD PATCH.**NOTE**

The 28th In-Service Management Panel meeting for Aviation Life Support Systems rescinded the requirement for the packer to sign the Inspection Record Patch on life-

rafts. The requirement for all other record documentation remains unchanged. The reason for this change is that most Inspection Record Patches are unreadable, and the packer's and inspector's names, including the type of inspection (leak/functional), are documented on Aviation Crew Systems Records.

Figure 11-9. Deleted

11-57. REPLACEMENT OF LOCKING CONES (LIFERAFT CASES). To replace damaged locking cones on liferaft cases, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Nylon 3-Cord	V-T-295
As Required	Cone, Locking	NIIN 00-095-0075-LX

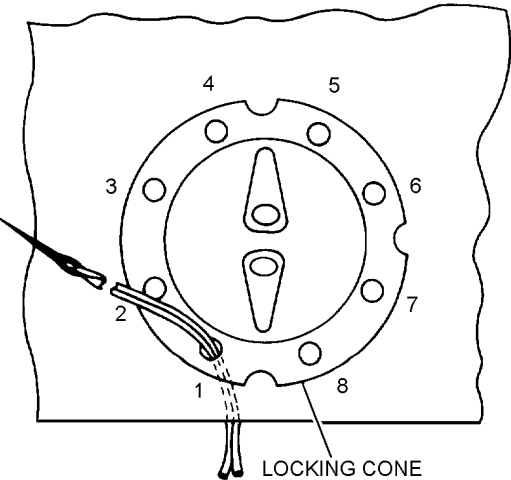
1. Cut and remove tacking holding damaged cone to liferaft case. Remove damaged cone.

NOTE

If fabric supporting locking cone is damaged, fabricate and install a reinforcing patch on inside of case.

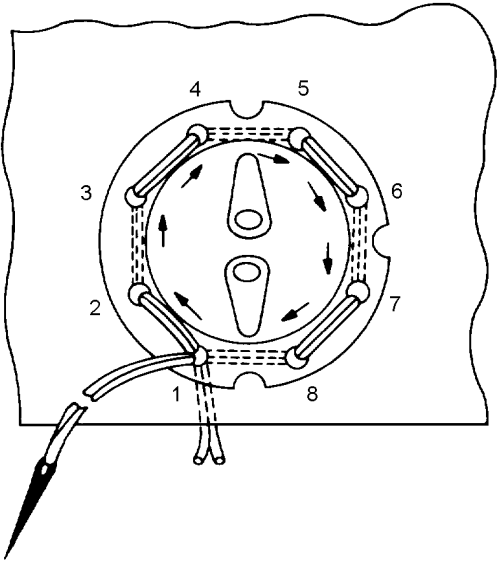
2. Position new locking cone in exact location of damaged or missing cone. Ensure locking pin hole in apex of cone is properly aligned.

3. Push needle, threaded with waxed nylon 3-cord (V-T-295) doubled, up through panel and through hole 1 in locking cone. Pull needle and thread through hole until approximately three inches of thread remains on underside of panel.



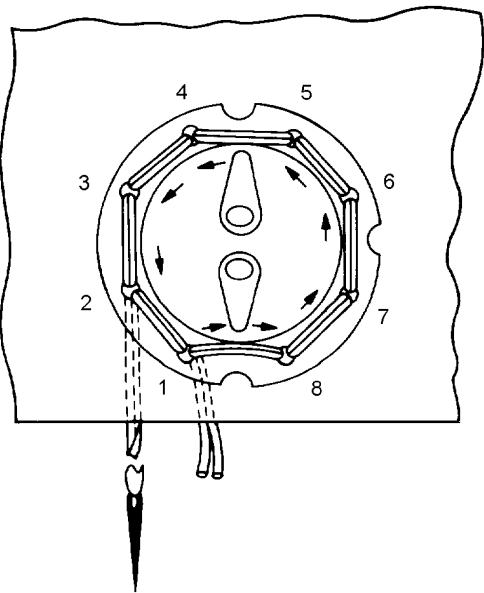
Step 3 - Para 11-57

4. Working clockwise, pass needle down through hole 2, up through hole 3. Continue until all holes are threaded, and needle passes up through hole 1. Take up all slack in thread.



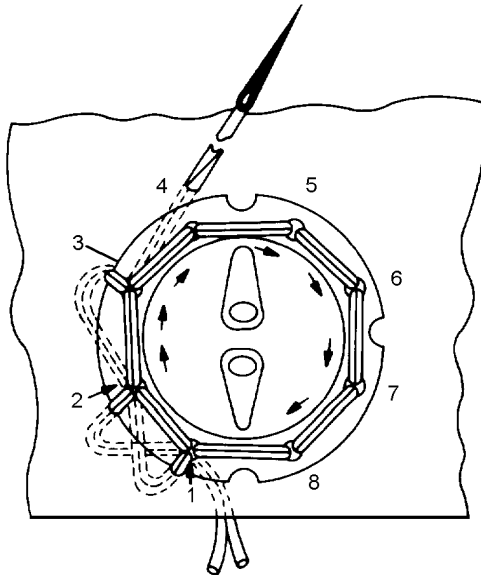
Step 4 - Para 11-57

5. Working counterclockwise, pass needle down through hole 8, up through hole 7. Continue until needle passes down through hole 2. Take up all slack in thread.



Step 5 - Para 11-57

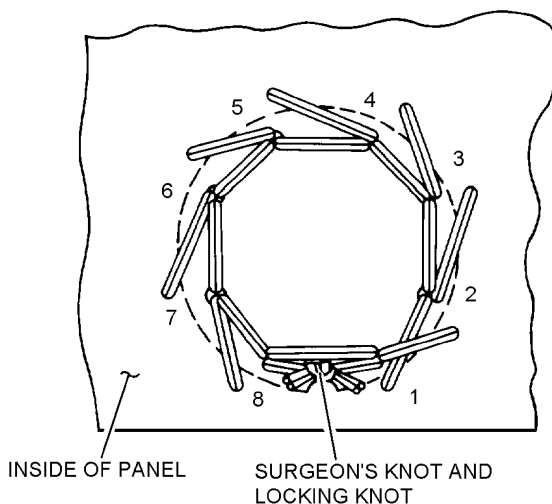
6. Pass needle up through panel at outside edge of cone directly adjacent to hole 1. Working clockwise, pass needle down through hole 1 and up through panel adjacent to hole 2, then down through hole 2. Continue stitching in this manner until needle passes down through hole 8. Take up all slack in thread.



Step 6 - Para 11-57

K0057006

7. Tie ends of thread on inside of panel with surgeon's knot followed by a square knot. Trim thread ends 1/4 inch from knot.



Step 7 - Para 11-57

K0057007

11-58. RELOCATION OF RETAINING LINE INSTRUCTION TAG. To relocate retaining line instruction tag, proceed as follows:

Materials Required

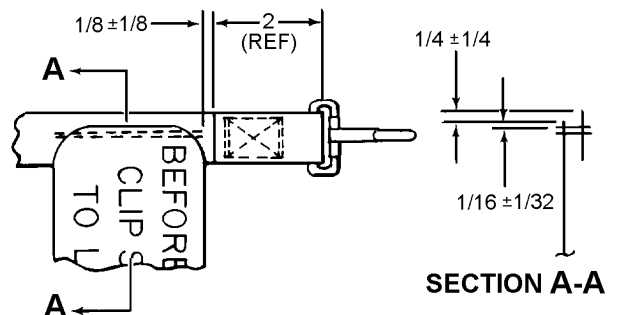
Quantity	Description	Reference Number
As Required	Thread, Nylon Type II, Size E	V-T-295 NIIN 00-204-3884

1. Remove the instruction tag from the snaphook.

NOTE

All stitching shall be done with size E thread, 6 to 10 stitches per inch.

2. Position instruction tag on retaining line and attach using two rows of stitches.



Step 2 - Para 11-58

K0058002

11-59. SOLDERING OF SNAPHOOK SPRING LATCH ON REMOTE ACTUATOR ASSEMBLY.

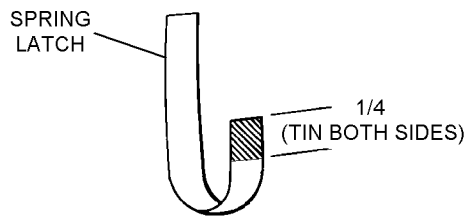
To solder the snaphook spring latch used on remote actuator assemblies, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Solder, Type AR	QQ-S-571

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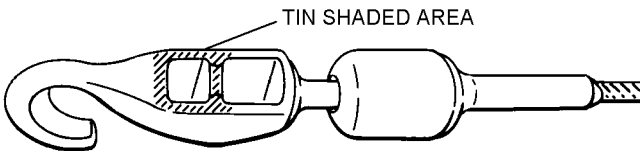
- 1. Remove pull cable from remote actuator assembly.
- 2. Remove spring latch from snaphook.
- 3. Using soft solder, tin both sides of spring latch 1/4 inch from end of hook.



Step 3 - Para 11-59

K0059003

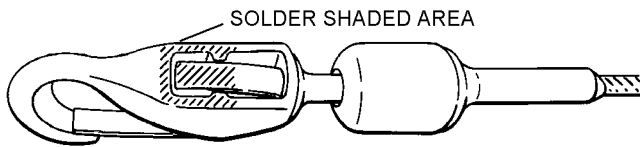
- 4. Using soft solder, tin snaphook.



Step 4 - Para 11-59

K0059004

- 5. Reinsert spring latch into snaphook and soft solder, securing spring latch in place.



Step 5 - Para 11-59

K0059005

- 6. Subject entire pull cable to a 50-lb pull test.

11-60. FABRICATION OF PAINTER LINE POUCH. Painter lines shall be installed on all multi-place liferafts. To fabricate the painter line pouch, proceed as follows:

Materials Required

Quantity	Description	Reference Number
5 x 20 inches	Leatherette, Class 2 or Herculite No. 80, Grey	CCC-A-700
53 inches	Tape, Pile, 3/4 inch	MIL-F-21840
41 inches	Tape, Hook, 3/4 inch	MIL-F-21840
As Required	Thread, Nylon, Type II, Size E	V-T-295 NIIN 00-204-3884
1	Snaphook, Wire Body, Fixed Loop Eye, Flat Spring Closure, With Retainer	MIL-S-43770/1-CWBC1
60 feet	Cord, Nylon, Type I	MIL-C-5040 NIIN 00-240-2154

NOTE

All stitching shall be done with size E nylon thread (V-T-295, Type II), using 8 to 10 stitches per inch.

- 1. Cut and stitch hook and pile tape along edge of material. See figure 11-10.
- 2. Stitch two 9-inch lengths of hook tape 1 1/4 inch from sides. See figure 11-10.

NOTE

Stitch pile tape on one end only.

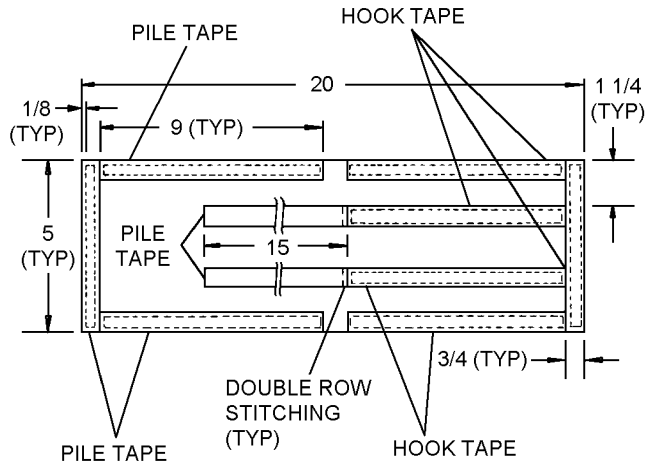


Figure 11-10. Painter Line Pouch

10110010

3. Position face up a 15-inch length of pile tape at inner end of each inside strip of hook tape. Secure inner end of each pile tape to material with double row of stitching. See [figure 11-10](#).

4. Form 1/2-inch wide hesitator loops, 1/8 inch apart. Press hook and pile tape together between loops. See [figure 11-11](#).

5. Stow painter line, making 3 1/2-inch bights, placing 8 folds in each hesitator loop. See [figure 11-11](#).

6. Leave 24 inches of line unstowed at each end for securing painter line to liferaft and aircraft. See [figure 11-11](#).

7. Fold material in half, forming pouch, and leave unstowed ends outside pouch. Press hook and pile tape together.

8. Attach snaphook to end of unstowed painter line extending from open end of pouch with a bowline knot.

11-61. DRILLING HOLES IN P/N A128-RT-1. To drill holes in P/N A128-RT-1, proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Drill, No. 52	—

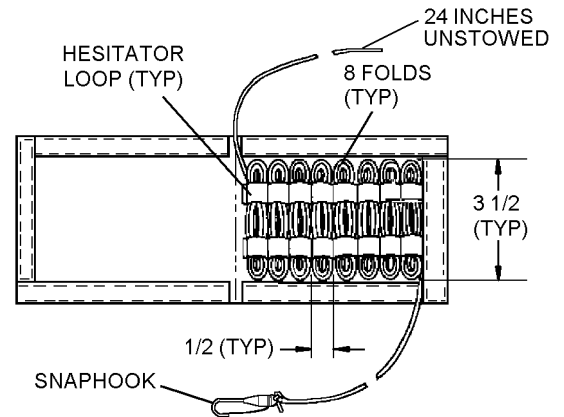
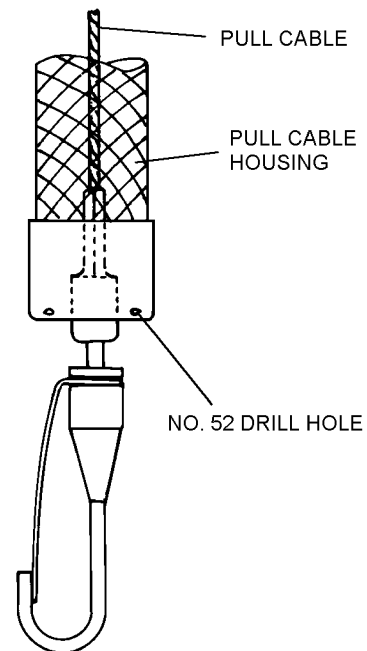


Figure 11-11. Stowed Painter Line

10110011

1. Using a no. 52 drill, drill two holes in pull cable housing.



Step 1 - Para 11-61

K0061001

2. Safety-wire pull cable housing in accordance with [paragraph 11-47](#).

11-62. DRILLING HOLES IN P/N IV0303 (VEE Mfg.) INFLATION VALVE. To drill holes in P/N IV0303 (VEE Mfg.) inflation valve, proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Drill, No. 52	—

1. Disconnect inflation valve from manifold.
2. Remove cover plate and plastic dust shield from valve.
3. Using a no. 52 drill, drill two holes in cover plate and plastic dust shield. See [figure 11-12](#).
4. Remove cam screw from sheave assembly.

WARNING

- Care must be taken not to rotate cam.
5. Remove sheave assembly.
 6. Carefully remove tru-arc ring from stem on valve body.
 7. Remove valve sheave from valve body.
 8. Using a no. 52 drill, drill a hole at a 60° angle in valve sheave. See [figure 11-12](#).

NOTE

Section line B-B through the center of the screwdriver slot and the center of the screw hole. A starter hole will be necessary to seat the drill, prior to drilling the angled hole.

CAUTION

Valve cover plate is not interchangeable between manufacturers.

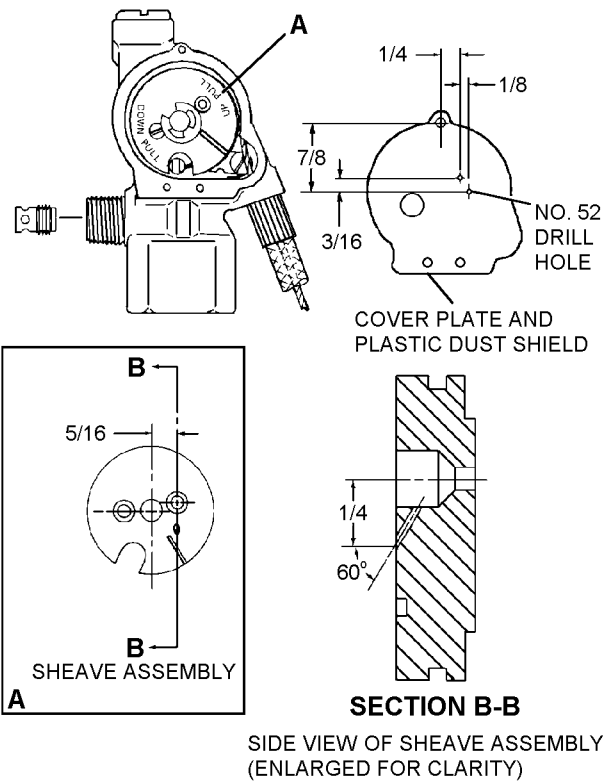


Figure 11-12. Drilling IV0303 Inflation Valve

10110012

9. Install valve sheave, tru-arc ring, release cable, cam screw, plastic dust shield, and cover plate. See [paragraph 11-47](#) for proper safety-wiring.

10. Connect inflation valve to manifold.

11-63. DRILLING HOLES IN P/N A128 INFLATION VALVE. To drill holes in P/N A128 inflation valve, proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Drill, No. 52	—

1. Disconnect inflation valve from manifold.
2. Remove cover plate from valve.

3. Using a no. 52 drill, drill two holes in cover plate. See [figure 11-13](#).

4. Remove release cable from around valve.

WARNING

Do not rotate cam or depress poppet stem.

5. Remove valve sheave from valve.

6. Using a no. 52 drill, drill a hole at a 23° angle in the valve sheave. See [figure 11-13](#).

7. Install valve sheave, cable, and cover plate. See [paragraph 11-47](#) for proper safety-wiring.

8. Connect the inflation valve to manifold.

11-64. DRILLING HOLES IN P/N 871444 INFLATION VALVE. To drill holes in part number 871444 inflation valve, proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Drill, No. 52	—

1. Disconnect inflation valve from manifold.

2. Remove cover plate from valve.

NOTE

Position of holes depends on type of pull used (up-pull or down-pull).

3. Using a no. 52 drill, drill two holes in cover plate. See [figure 11-14](#).

4. Remove release cable from around valve sheave.

WARNING

Do not rotate cam or depress poppet stem.

5. Remove valve sheave from valve.

6. Using a no. 52 drill, drill a hole at an 18° angle in valve sheave. See [figure 11-14](#).

7. Install valve sheave, cable and cover plate. See [paragraph 11-47](#) for proper safety-wiring.

8. Connect inflation valve to manifold.

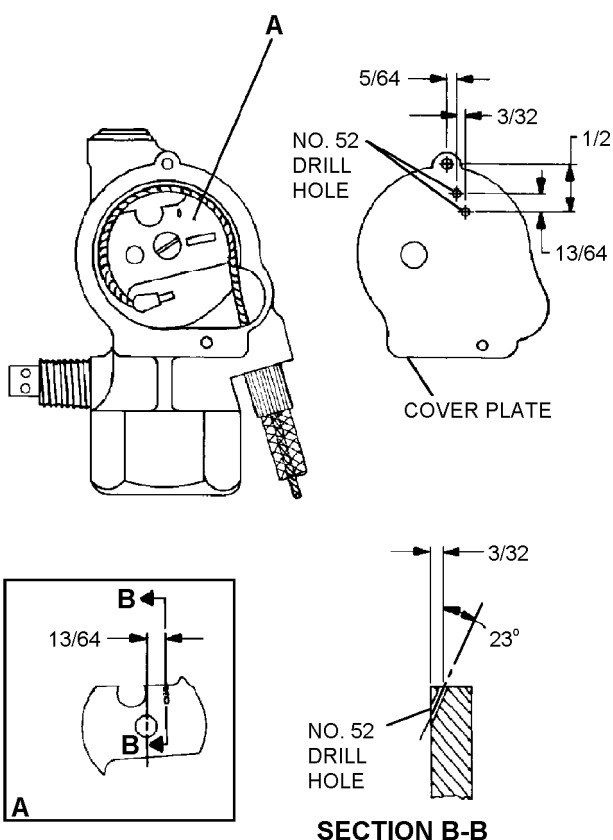


Figure 11-13. Drilling A128 Inflation Valve

10110013

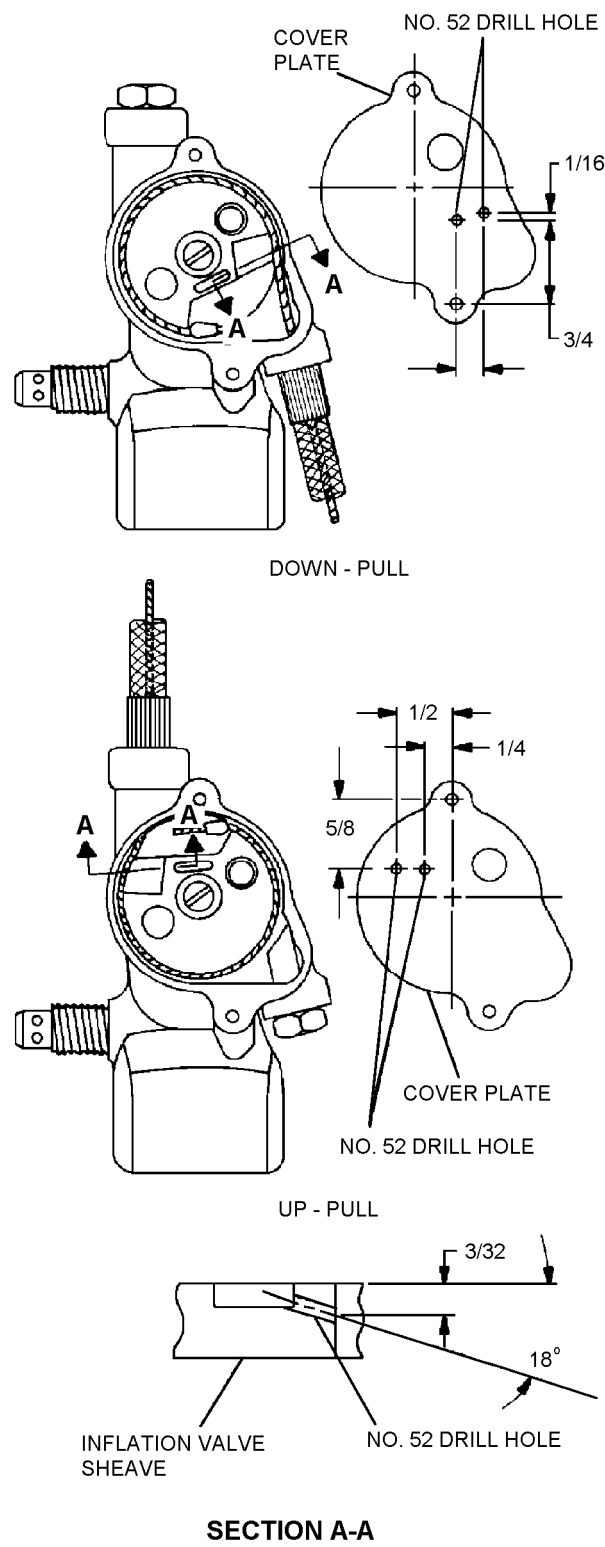


Figure 11-14. Drilling 871444 Inflation Valve

10110014

11-65. FABRICATION OF CYLINDER VALVE ANTI-CHAFING SLEEVE. To fabricate a cylinder valve antichafing sleeve, proceed as follows:

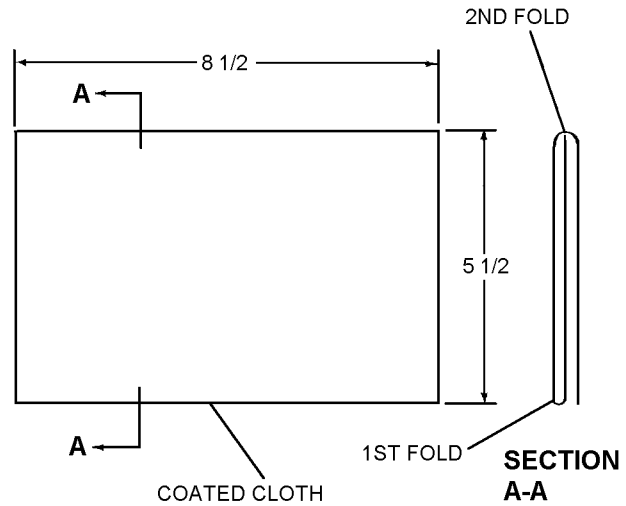
Materials Required

Quantity	Description	Reference Number
16 1/2 x 8 1/2 inches	Cloth, Laminated Var. D, Blue	MIL-C-23070 NIIN 00-132-5009
	-or-	
	Cloth, Laminated Var. C, Orange	MIL-C-23070 NIIN 00-081-5829
	-or-	
	Cloth, Laminated Var. C, Yellow	MIL-C-23070 NIIN 00-926-6489
1	Punch, Cutting, Type I, Class B, Style 1, Size 13	GGG-P-833A NIIN 00-180-0927
As Required	Thread, Nylon, Type II, Size E	V-T-295 NIIN 00-204-3884

NOTE

All stitching shall be done with size E thread, 6 to 10 stitches per inch.

1. Make two folds in the nylon rubber-coated cloth, each fold being 5 1/2 inches as shown.

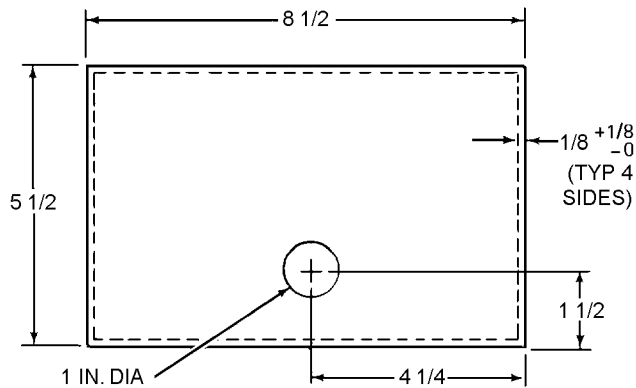


Step 1 - Para 11-65

K0065001

2. Sew a 1/8-inch inboard border row of stitching around the perimeter of the assembly.

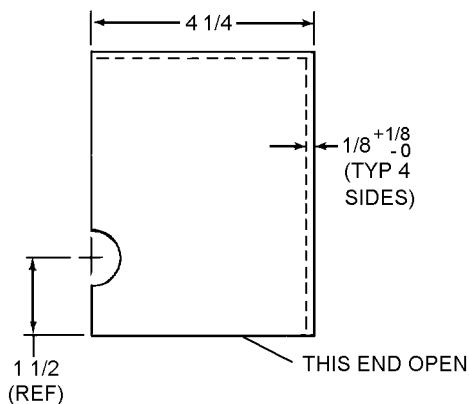
3. Position assembly on cutting board and punch a 1-inch diameter hole through all three layers of material.



Step 3 - Para 11-65

K0065003

4. Fold assembly in half and sew a 1/8-inch row of stitching inboard from edge on end and side.



Step 4 - Para 11-65

K0065004

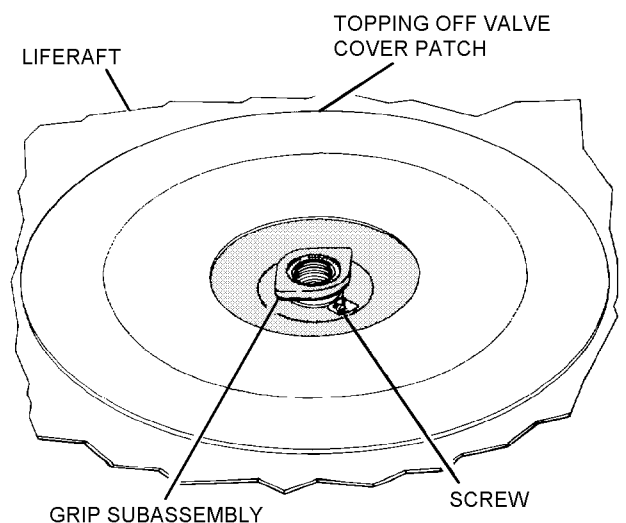
11-66. REPLACEMENT OF TOPPING-OFF VALVE. To replace a damaged or corroded topping-off valve, proceed as follows:

Materials Required

Quantity	Description	Reference Number
1	Grip Subassembly (See Note)	MS22054-3
1	Washer (See Note)	MS22054-7
1	Screw (See Note)	MS22054-9
As Required	Applicator, Wood, Cotton-tipped	GGA-616D
As Required	Toluene	TT-T-548 NIIN 00-281-2002
	-or-	
	Methyl Ethyl Ketone (MEK)	TT-M-261 NIIN 00-281-2762
As Required	Adhesive, Class 3, Polychloroprene	MIL-A-5540 NIIN 00-142-9913

Note: This component is part of parts kit, P/N 1106AS110-1 (CAGE 30003) NIIN 01-128-5331.

1. Ensure that grip subassembly is in closed position.



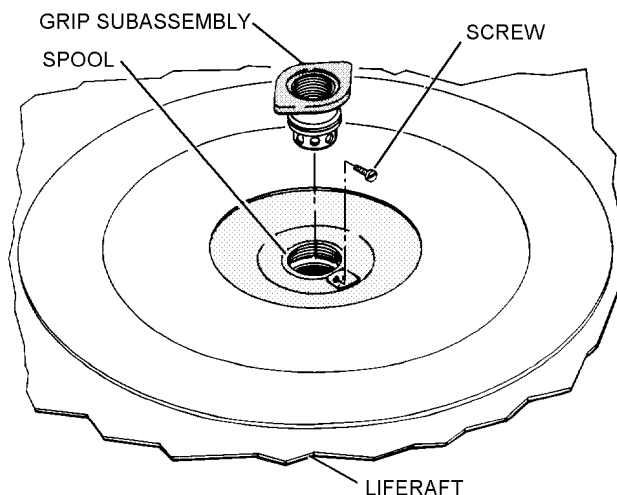
Step 1 - Para 11-66

K0066001

NAVAIR 13-1-6.1-1

2. Turn grip subassembly clockwise approximately 1 1/2 turns.

3. Remove screw from side of spool.



Step 3 - Para 11-66

K0066003

4. Unscrew and remove grip subassembly from spool.

WARNING

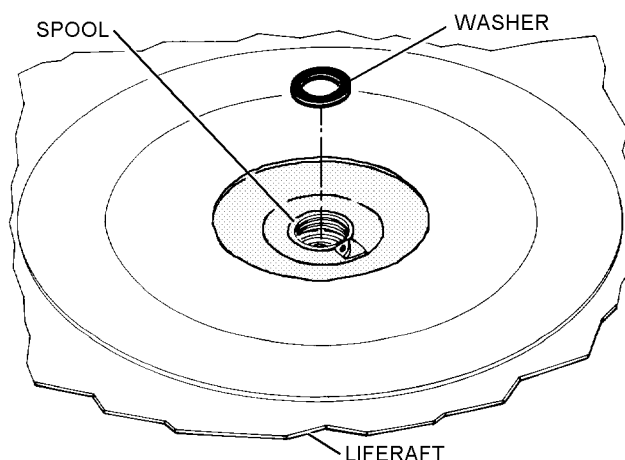
Do not use toluene or MEK near open flame, heat or electrical sparks. Avoid prolonged contact with skin or breathing of fumes. Use only in well-ventilated area.

CAUTION

To avoid damaging valve threads, care should be taken when inserting instrument to remove washer.

Use only enough toluene to loosen washer. Ensure that no toluene or MEK passes through bottom of valve opening. Wipe excess from liferaft as rapidly as possible.

5. Remove washer located in bottom of spool. If necessary, use toluene or MEK to assist in removal.



K0066005

Step 5 - Para 11-66

NOTE

Ensure that no toluene, MEK, or congealed masses of adhesive enter the opening at bottom of spool.

Toluene shall be the primary solvent used in this assembly. MEK may be used if toluene is not available. Always use solvents sparingly and wipe up excess solvents; do not allow to dry by evaporation.

6. Insert an applicator or similar instrument dipped in toluene or MEK into spool and swab washer seating area to remove old adhesive.

7. Apply adhesive, using an applicator or similar instrument, to washer seating area on inside bottom of spool.

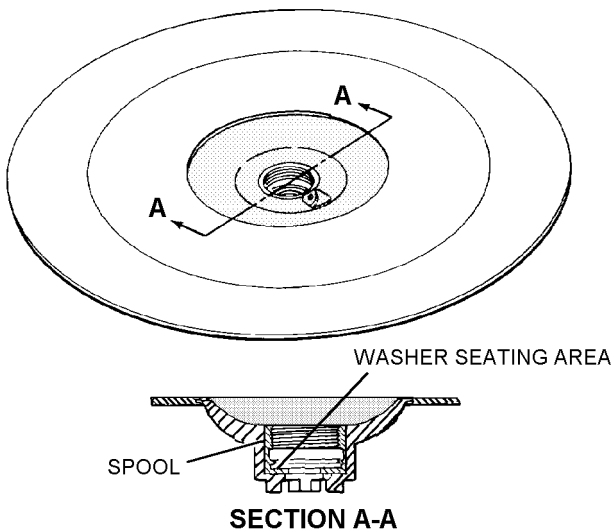
CAUTION

Do not use sharp instrument to insert washer into seating area.

NOTE

Ensure that the washer is properly seated on to bottom of spool and that the threads and opening are free of adhesive.

8. Insert washer into washer seating area.



Step 8 - Para 11-66

K0066008

9. Screw grip subassembly counterclockwise into spool until it closes.
10. Turn grip subassembly clockwise approximately 1 1/2 turns.
11. Tighten screw into side of spool until snug.
12. Ensure proper operation of topping-off valve.
13. Perform leakage test.

11-67. FABRICATION OF LIFERAFT CONTAINER FOR C-130 AIRCRAFT. To fabricate a container for the LRU-15/A for packaging into the wingwell of a C-130 aircraft, proceed as follows:

Materials Required

Quantity	Description	Reference Number
3 1/2 yards	Cloth, Coated Nylon Type II, Class 3	MIL-C-20696
17 feet 1 3/4 inches wide	Webbing, Nylon, Size E	MIL-W-4088
As Required	Thread, Nylon, Size E	V-T-295
14	Grommet, Metallic Size O	MS20230-10
8	Button	MS27980-1N
8	Socket	MS27980-6N
8	Stud	MS27980-7N
8	Eyelet	MS27980-8N
4	D-Ring	MS22046-1

1. Lay out and cut the following panels from coated cloth (MIL-C-20696) as shown in figures 11-15 and 11-16.

- a. One Body Panel 43 inches x 80 5/8 inches (figure 11-15).

- b. Two Side Panels 23 3/4 inches x 38 3/8 inches (figure 11-18).

- c. One Inspection Card Pocket 6 inches x 10 inches (figure 11-18).

2. Cut and sear the following pieces of 1 3/4-inch nylon webbing (MIL-W-4088) as shown in figures 11-16 and figure 11-19.

- a. 2 each - Lift Webbings 68 inches long (figure 11-16).

- b. 1 each - Stiffener 26 inches long (figure 11-16).

- c. 2 each - Guides 5 1/4 inches long (figure 11-16).

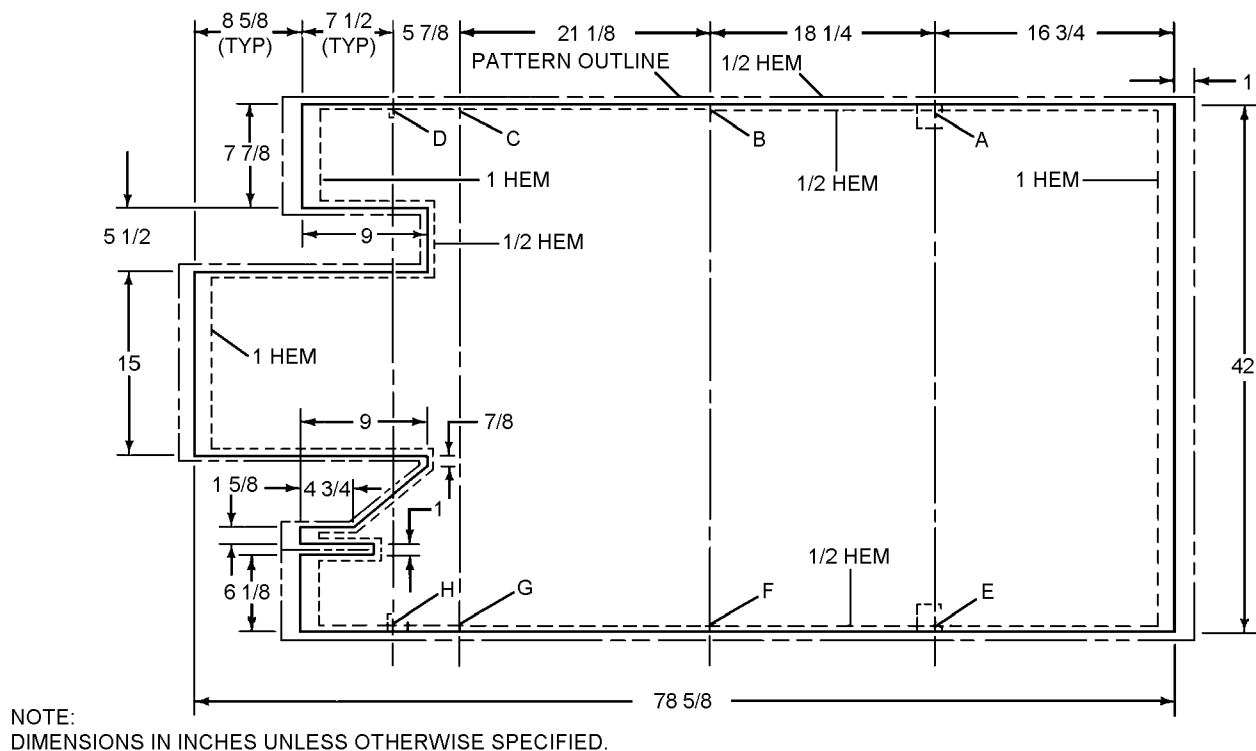


Figure 11-15. Panel Body Dimensions

10110015

d. 2 each - Tie Downs 7 inches long (figure 11-16).

e. 4 each - Reinforcements 4 1/4 inches long (figure 11-19).

NOTE

The following describes fabrication of a liferaft container for the left wing of the aircraft. A container for the right wing of the aircraft is built exactly opposite.

3. From a 43 inch x 80 5/8 inch piece of coated cloth, fabricate a body panel as shown in figure 11-15. Outermost line allows for 1/2 and 1-inch hems. Cut material so that it will conform to the inside line dimensions shown, after hems are made. First, make 1/2-inch hems, stitching 3/8 inch in along new edges, then make 1-inch hems, stitched 7/8 inch in along new edges, overlapping 1/2-inch hems at corners. Locate and identify marker points A through D and E through H, for ease of assembly with side panels.

NOTE

Unless otherwise specified, all machine stitching shall be in accordance with ASTM-D-6193, type 301 lockstitch, 8 to 10 stitches per inch. Binding tape may be used as an optional method of finishing edge.

4. Take the two 68 inch lengths of lift webbing and attach a D-ring to each end, as shown in figure 11-16, Section A-A. Position these webbing assemblies on panel body and stitch in place as shown. Take 26 inch length of stiffener webbing and position as shown, overlapping two previously attached lengths of lift webbing and stitch in place as shown, Section B-B. Cut off excess webbing.

5. Install size "O" grommet assemblies (MS20230) into each of the two 7-inch tie down webbings (Section C-C). Position these assemblies onto body panel as shown and stitch in place as shown in Section C-C.

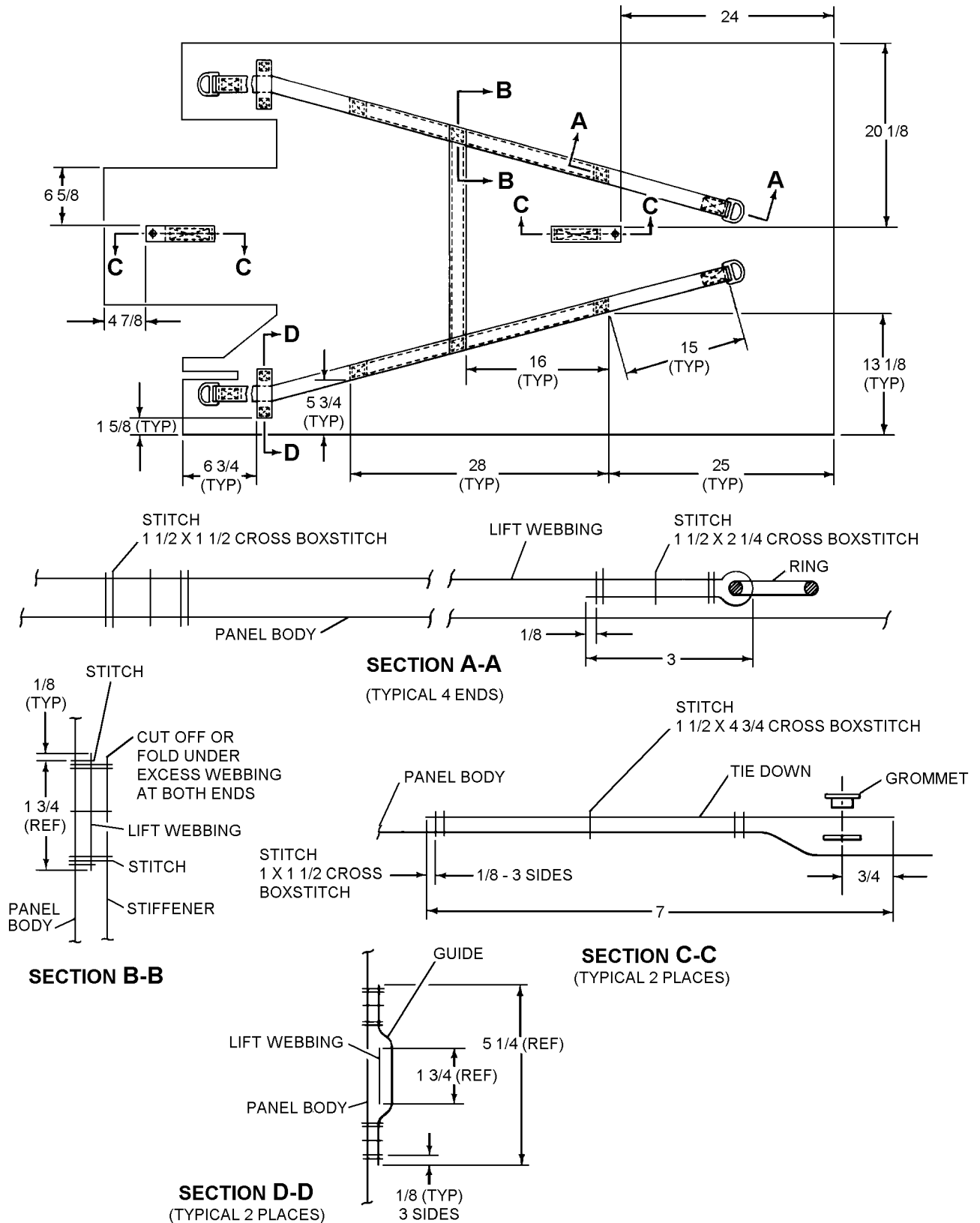


Figure 11-16. Webbing Locations

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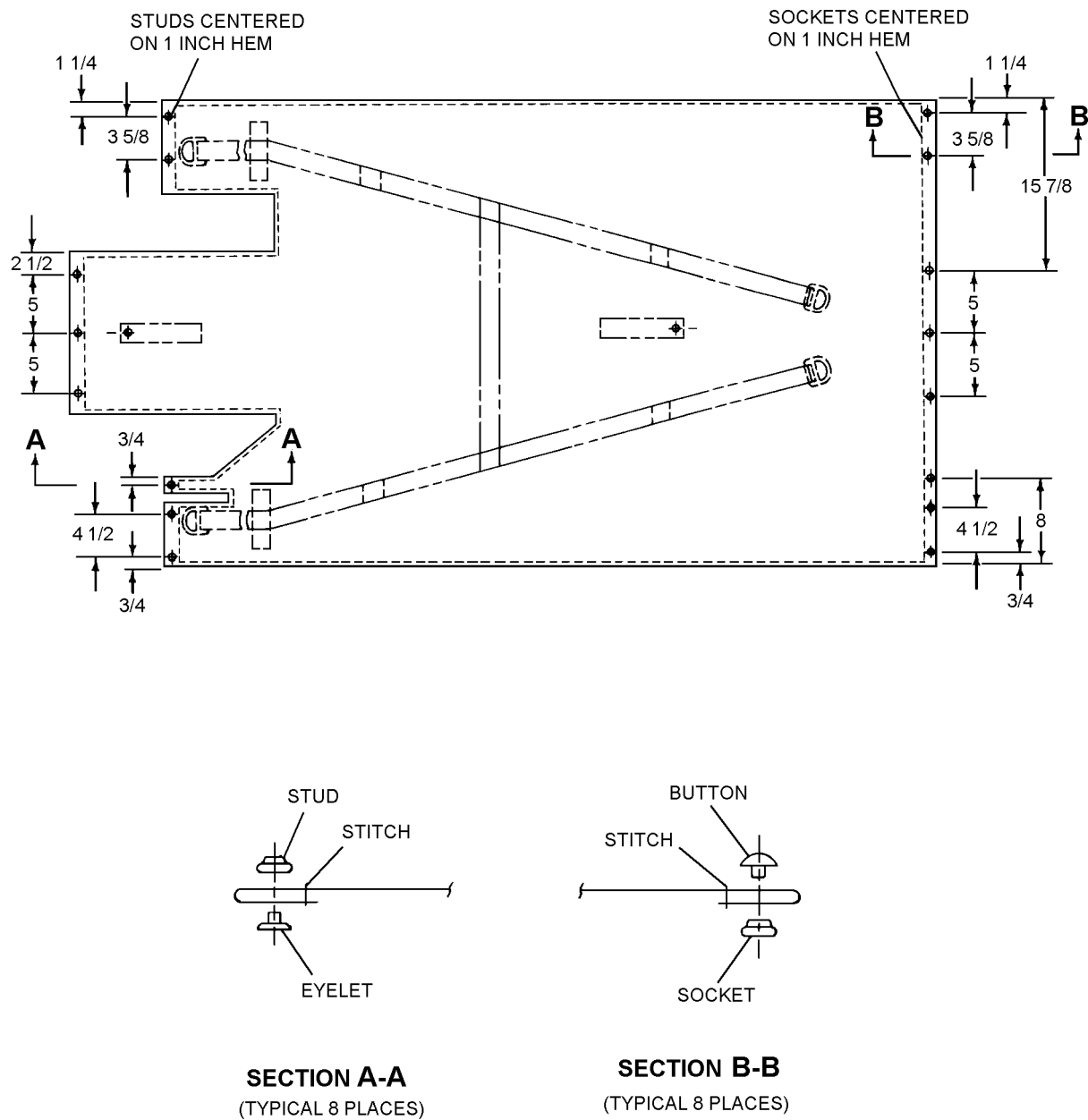


Figure 11-17. Fastener Locations

10110017

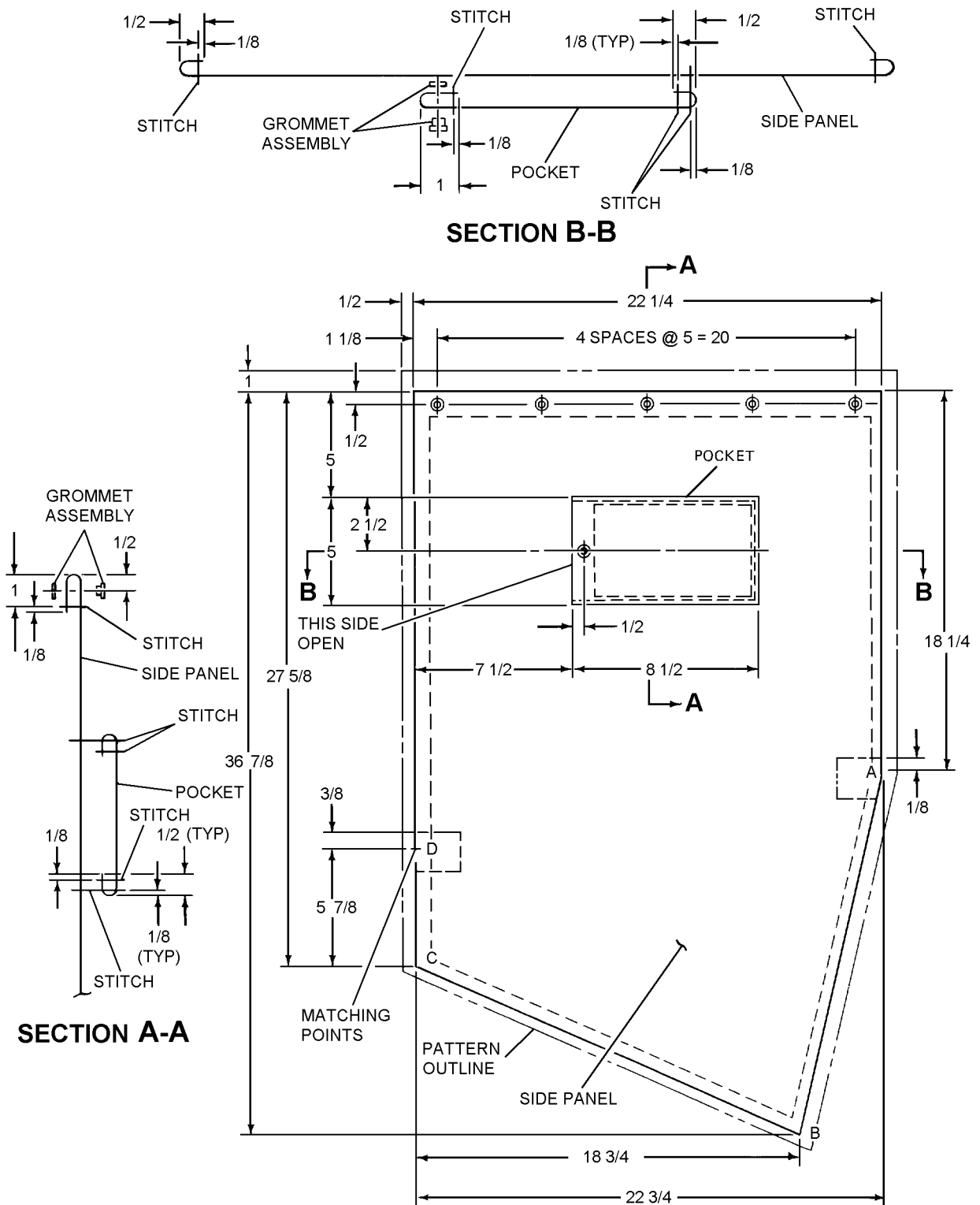


Figure 11-18. Side Panel

10110018

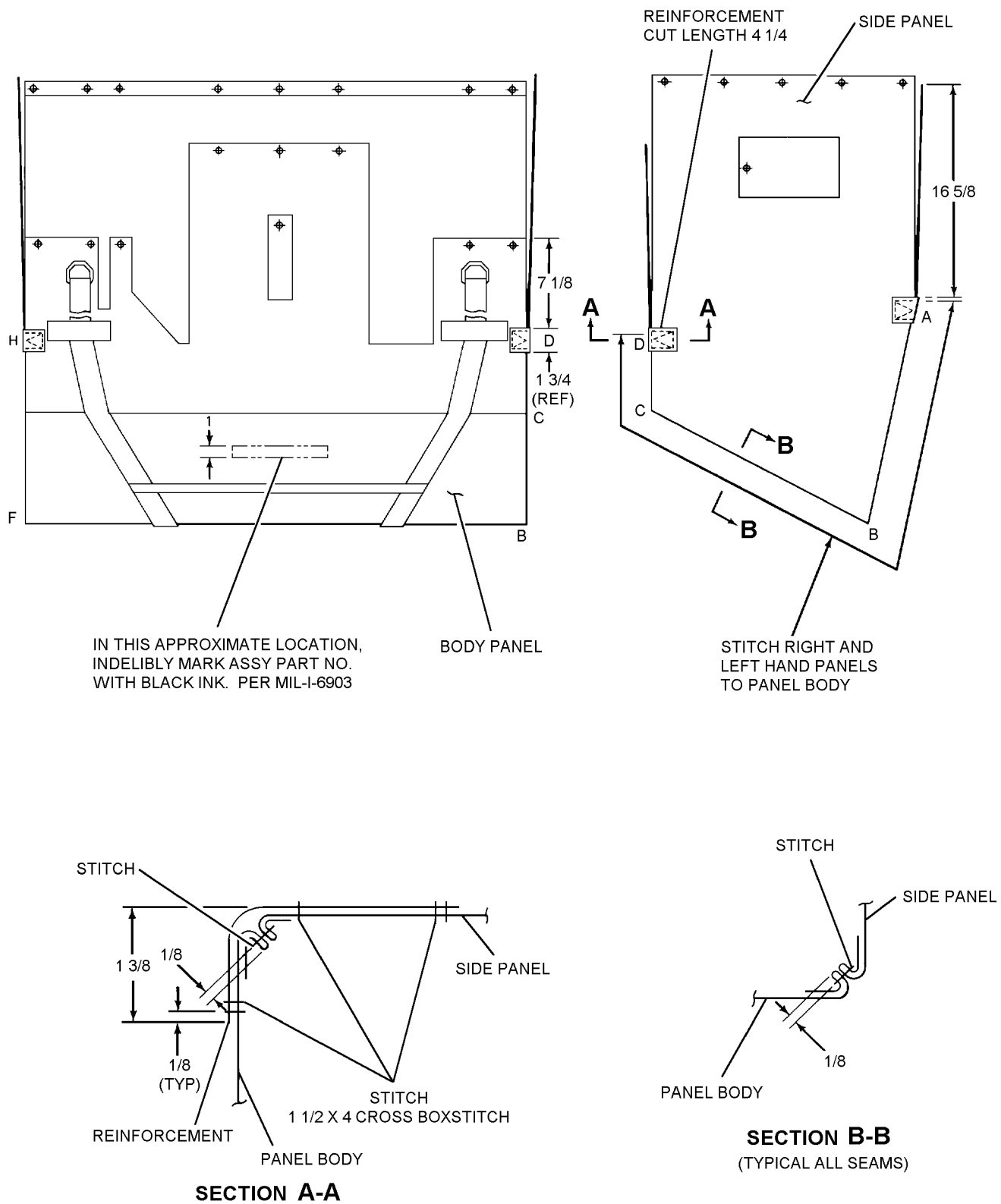


Figure 11-19. Assembled Container

10110019

6. Position the two 5 1/4-inch guide webbings onto body panel as shown and stitch in place as shown in Section D-D.

7. Attach 8 snap fasteners (MS27980) into the body panel as shown in [figure 11-17](#), centered on the 1-inch hems. Button/Sockets will be installed along the straight edge, buttons up and the Stud/Eyelets along opposite edge, studs up (Sections A-A and B-B).

8. From 23 3/4 inch x 38 3/8 inch pieces of coated cloth, fabricate both side panels. Allowing for 1/2 and 1-inch hems, cut material so that it will conform to inner line dimensions shown in [figure 11-18](#), after hems are made. Note the dimension from point A at the center of the right edge, to the left edge is 1/2 inch greater. Make 1/2-inch hems first, stitching 3/8 inch in along new edges. One-inch hem will then be made, stitched 7/8 inch in along new edge, overlapping 1/2-inch hems at corners. Locate and identify marker points on each side panel.

9. Install the 5 grommet assemblies (MS20230) on each side panel, centered on the 1-inch hem as shown in [figure 11-18](#).

10. Take, the 6-inch x 10-inch piece of coated cloth (pocket) and hem according to Sections A-A and B-B. Position a grommet assembly on the pocket opening and install as shown. Place the pocket assembly into position (1-inch hem facing 27 5/8-inch edge) on one side panel and stitch as shown in [figure 11-18](#). The opposite side panel is fabricated without pocket.

11. Place right and left hand side panels against body panel so that lettered marker points (A through H), shown on [figures 11-15](#), [11-18](#) and [11-19](#) coincide. Stitch side panels to body panel as shown in [figure 11-19](#), Sections A-A and B-B. Position four 4 1/4-inch lengths of webbing (reinforcements) at reinforcement points marked A, D, E, and H on figures, and stitch as shown.

11-68. FABRICATION OF MOCKUP C-130 AIRCRAFT WINGWELL. To fabricate a mockup C-130 aircraft wingwell to aid in packing LRU-15/A life-rafts, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Locally Available Materials	—

NOTE

The following steps concern fabrication of a mock wingwell assembly for use during shop folding/packing of the liferaft. However, the liferaft may be accordion-folded into the new liferaft container directly in the aircraft wing should the mockup assembly not be desired.

1. Using available materials, construct a packing assembly as outlined in [figure 11-20](#). Using any suitable fastening devices, fasten liner flush with top of frame. Ensure that all edges are smooth and burrs are removed to prevent damage to liferaft. Use tape or equivalent nonabrasive material, wherever necessary, to smooth rough edges.

2. Fabricate a CO₂ cylinder cradle from available materials. (A spare CO₂ cylinder will be helpful in obtaining correct dimensions.) Allow provisions for left- and right-hand cylinder installations. Edges should be protected with tape or equivalent.

NOTE

Spare aircraft components (fiberglass liner and CO₂ cradle) may be used if available in place of locally fabricated parts.

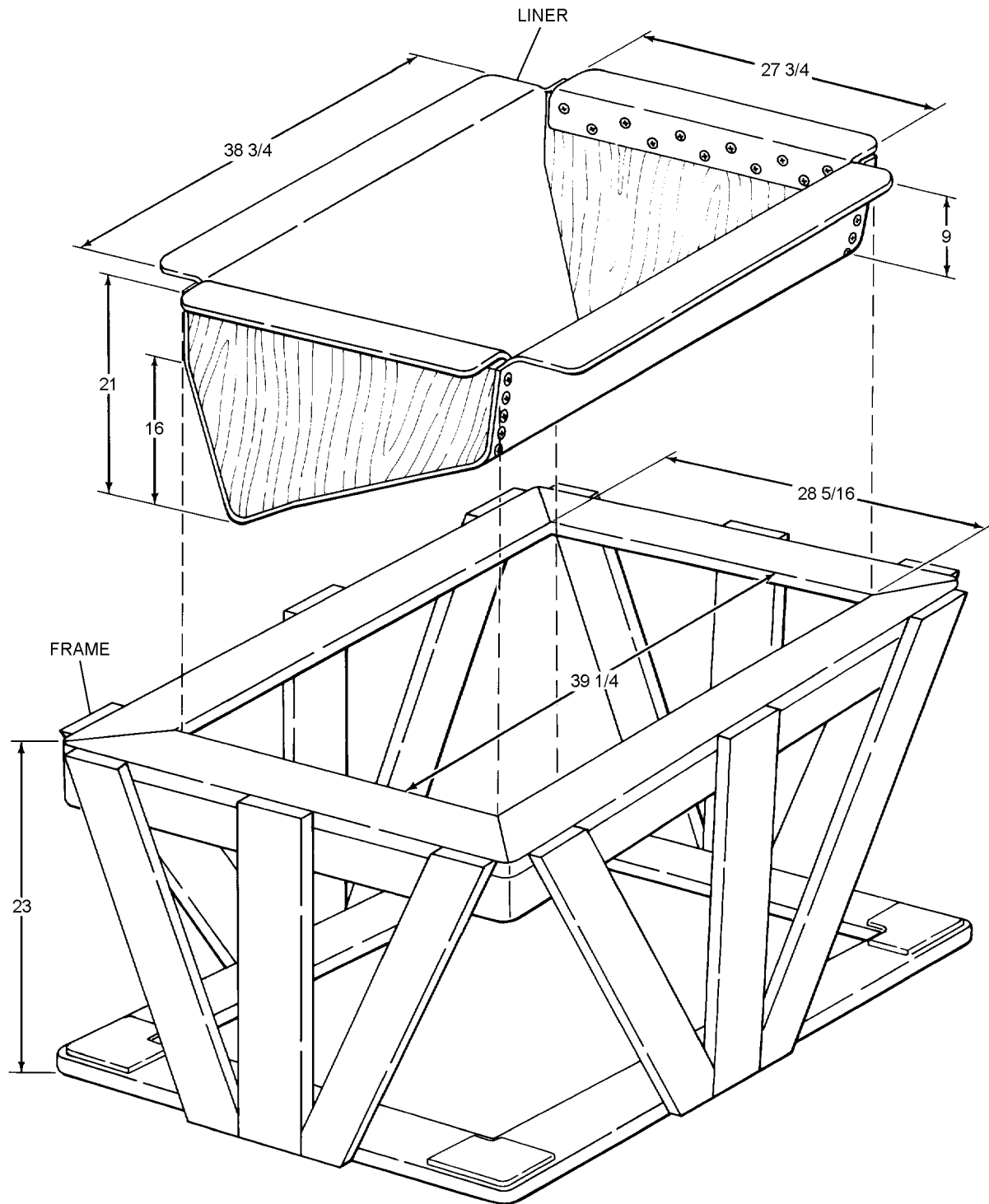
11-69. REMOVAL OF INLET VALVE CHECK ELEMENT AND FABRICATION OF IDENTIFICATION PATCH. To remove inlet valve check element, and to fabricate identification patch, proceed as follows:

Materials Required

Quantity	Description	Reference Number
4 x 7 inches	Cloth, Nylon, Rubber-Coated, Var. C	MIL-C-23070
As Required	Ink, Marking, Laundry, Black	TT-I-542 NIIN 00-161-4229

1. Deflate liferaft in accordance with [paragraph 11-25](#).

2. Disconnect manifold from liferaft.



MATERIAL: 1" X 4" PINE SHELIVING OR EQUAL

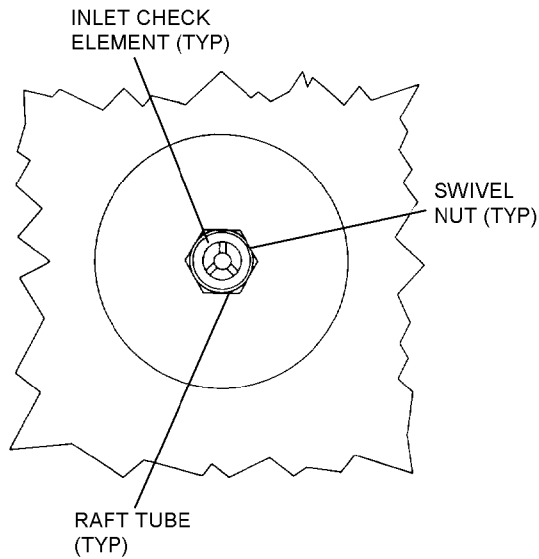
Figure 11-20. Packing Frame Assembly

10110020

NOTE

Ensure that inlet valve, swivel nut, and manifold are free of dirt and foreign matter.

3. Remove check element from inlet valve by forming a small hook from a paper clip; hook one of the trispoked legs and pull upwards, thus removing check element and spring.



K0069003

Step 3 - Para 11-69

WARNING

When reinstalling manifold (P/N 9153), ensure that nylon gaskets (P/N 1106AS108-2) are properly positioned; the two nylon gaskets with larger inside diameters are to be placed toward liferaft. When reinstalling manifold (P/N C-50980), ensure copper seals (P/N A50969) are present and properly positioned around the set screws on the outlets. Do not use nylon gaskets on the outlets with manifold P/N C-50980.

4. Reinstall manifold to liferaft. Torque to 140 to 150 in-lb.

5. Close vent. Partially inflate liferaft with air.

6. Open manifold and ensure that air escapes. Reclose vent. Vent shall remain closed until liferaft is installed in aircraft wing compartment.

7. Deflate liferaft in accordance with [paragraph 11-25](#).

8. Mark a 4 1/2 x 7 1/2-inch area directly above the manifold on upper tube.

NOTE

Any contrasting colored rubber-coated nylon cloth may be used to fabricate identification patch.

Ensure that identification markings on patch complies with basic liferaft configuration (LRU-15/A or MK-20 Liferaft).

9. Letter applicable markings on one side of patch. Use waterproof black ink. See [figure 11-21](#).

NOTE

Cement applications shall be performed in accordance with [paragraph 11-52](#).

10. Cement applicable identification patch to marked off area on upper tube.

11-70. REPLACEMENT OF MANIFOLD. To replace a defective manifold or to replace a P/N 716 manifold, with a P/N 9153 or P/N C-50980 manifold, proceed as follows:

Materials Required

Quantity	Description	Reference Number
1	Manifold	9153 (CAGE 97375)
	-or-	
	Manifold	C50980 (CAGE 08407)
2	Seal, Copper	A50969 (CAGE 08407)
2	Gasket, Nylon	1106AS108-2 (CAGE 30003)
1	Gasket, Nylon	1106AS108-3 (CAGE 30003) NIIN 00-960-5735
	-or-	
1	Gasket Parts Kit, Manifold	1106AS108-1 (CAGE 30003) NIIN 00-960-5735

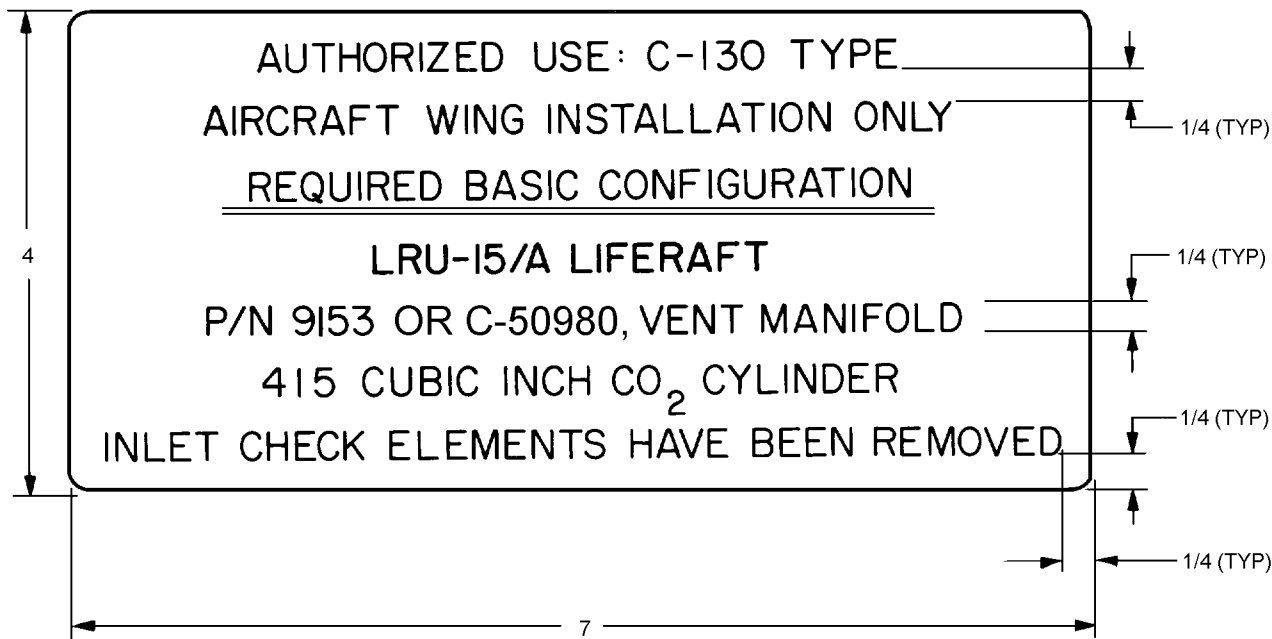


Figure 11-21. Identification Patch for C-130 Type Aircraft Wing Installation Liferaft

10110021

1. Perform functional test on new manifold P/N 9153 in accordance with [paragraph 11-24](#).
2. Remove defective manifold P/N 716, 9153 or C-50980 from inflation valve and liferaft.

WARNING

When reinstalling manifold (P/N 9153), ensure that nylon gaskets (P/N 1106AS108-2) are properly positioned; the two nylon gaskets with larger inside diameters are to be placed toward liferaft. When reinstalling manifold (P/N C-50980), ensure copper seals (P/N A50969) are present and properly positioned around the set screws on the outlets. Do not use nylon gaskets on the outlets with manifold P/N C-50980.

3. Install new manifold onto inflation valve and liferaft. Torque to 140 to 150 in-lb.
4. Ensure that gaskets and seals are installed. Nylon gaskets P/N 1106AS108-2 are used on manifold 9153 at the raft connection points. Copper seals A50969 are used on manifold C-50980 at the raft connection points. Nylon gasket P/N 1106AS108-3 is used on both the 9153

and C-50980 manifolds at the inflation valve connection point.

NOTE

To reset manifold P/N C-50980 to vent position, apply inward pressure on the head of the Breather Piston, in the center of the stainless steel nut until reseated in the detent.

5. Push manifold vent/shut poppet in; ensure that vent/shut poppet is down in VENT position.

11-71. FABRICATION OF SURVIVOR ATTACHMENT STRAP (LRU-15/A DROPPABLE LIFE-RAFT). To fabricate survivor attachment strap, proceed as follows:

Materials Required

Quantity	Description	Reference Number
14 inches	Webbing, Nylon Type II, 1 inch, Neutral	MIL-W-4088
As Required	Thread, Nylon Type II, Size E	V-T-295 NIIN 00-204-3884
1	Snaphook	M43770/1-CWBC3

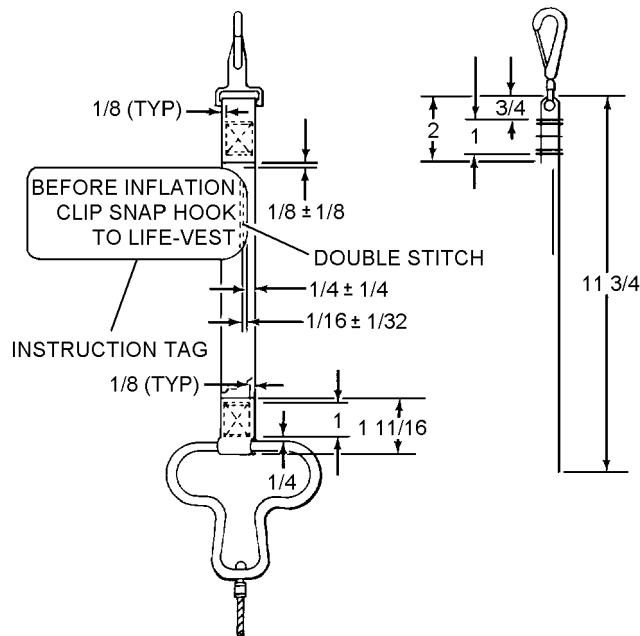


Figure 11-22. Survivor Attachment Strap

10110022

1. Using dimensions shown in figure 11-22, pass one end of nylon webbing through snaphook, fold over 2 inches; then sew a 2-inch crossboxstitch with size E nylon thread.

2. Using dimensions shown in figure 11-22, fold opposite end of nylon webbing around ripcord handle approximately 1 11/16 inches; then cross boxstitches with size E nylon thread.

3. Position instruction tag below crossboxstitch on snaphook end. Double stitch instruction tag to webbing with size E nylon thread. See figure 11-22.

11-72. REPLACEMENT OF LIFERAFT HEAVING LINE. To replace liferaft heaving line proceed as follows:

Materials Required

Quantity	Description	Reference Number
75 feet	Cord, Nylon, Coreless Type I, 400 lb Test	MIL-C-7515

1. If required, untie bowline knot and remove defective heaving line from attachment loop in heaving line pocket on main tube of liferaft.

2. Using bowline knot secure one end of replacement line to attachment loop in heaving line pocket.

3. Secure heaving line grommet to opposite end of heaving line using bowline knot.

4. Fake heaving line on flat surface using into 13-inch bights. Gather the line and place rubberband around each end one to two inches from end of bights.

5. Place heaving line in heaving line pocket under grommet. Close pocket and secure snaps.

11-72A. REPAIR OF LIFERAFT CARRYING CASE. To repair the liferaft carrying case, proceed as follows:

Materials Required		
Quantity	Description	Reference Number
As Required	Thread, Nylon Size E, Type I or II	V-T-295
As Required	Cloth, Laminated, Var. C, Orange	MIL-C-23070 NIIN 00-081-5829

1. Tears of less than 1 inch shall be darned or repaired with a zigzag stitch.

2. Tears of 1 to 6 inches shall be covered with a patch.

3. Broken stitching shall be repaired by over-stitching 2 inches past the ends of the broken stitches and shall be back-stitched 1 inch.

4. Tears of over six inches shall not be repaired.

11-73. PACKING LRU-15/A LIFERAFT.

11-74. The LRU-15/A liferaft assembly may be packed for droppable or for wing installation. The method used depends upon the aircraft application. The LRU-15/A shall be packed by qualified personnel at the lowest level of maintenance possible. Cleaning and servicing instructions may be found in paragraph 11-39.

11-75. PACKING PROCEDURE FOR LRU-15/A LIFERAFT ASSEMBLY (DROPPABLE). To pack a droppable LRU-15/A liferaft assembly, proceed as follows:

1. Ensure that liferaft, carrying case, and accessory container have been inspected in accordance with paragraph 11-13. Liferaft packing components are listed in table 11-11.

2. Ensure that survival items have been inspected for expiration and damage. Refer to table 11-7 for items used.

Table 11-11. Liferaft Packing Components (Droppable)

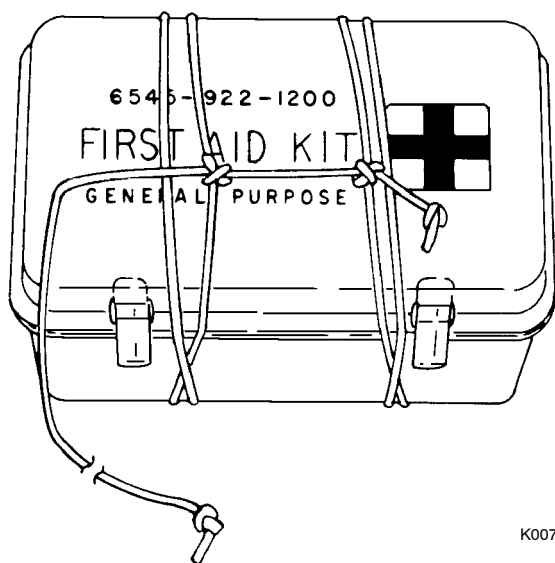
Component	Quantity	Reference Number	NIIN	SM&R Code
Carrying Case	1	63A80H6-1 (CAGE 30003)	00-913-1065	PAOGG
Accessory Container	1	63A80H4-1 (CAGE 30003)	00-842-7112	PAOZZ
Survivor Attaching Line	1	63A80H6-13 (CAGE 30003)	—	XAGZG
Inflation Assembly Cover	1	63A80H8-1 (CAGE 30003)	—	PAOZZ

NOTE

NAVAIR 13-1-6.5 contains information on inspection/replacement and modification to the survival items.

3. Wrap breakable survival items with either rubber-coated cloth or cushioning wrap (NIIN 00-142-9008) and secure with rubber bands. Stow survival items in accessory container and supply pocket. Tie hand pump, installed radio(s), and Manual Reverse Osmosis Desalinator (MROD) to accessory container handle with a 48-inch length of Type III nylon cord. Ensure that a bowline knot is applied.

4. Secure latches on first aid kit several layers of pressure-sensitive tape (NIIN 00-266-5016). Using an 8-foot length of Type III nylon cord, tie an overhand knot in both ends. Wrap one end of cord two turns twice around the first aid kit on the inside of the kit latches and tie with a surgeon's knot. Route opposite end of cord to accessory container grommet and secure with a bowline knot. Stow first aid kit in accessory container.



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Step 4 - Para 11-75

5. Ensure that all topping-off valves are closed.

NOTE

Procure 26-foot length of nylon cord, Type III (MIL-C-5040) from supply. Ensure that both ends of cord have been seared to prevent fraying.

6. Attach nylon cord to ripcord cable loop with a square knot, leaving a 5-foot length of nylon cord on one side for the actuation line and a 20-foot length of nylon cord on the opposite side for a retaining line. Safety-tie square knot with one turn of size E thread. See figure 11-23.

7. Using a bowline knot, secure 5-foot nylon cord actuation line to inflation assembly snaphook. Safety-tie bowline knot with one turn of size E thread. See figure 11-23.

WARNING

Wrap only the snaphook. Tape which extends to the pull cable housing will impede proper actuation of the liferaft assembly.

8. Wrap pull cable snaphook with a layer of wide paper tape to prevent snaphook from hanging up on case after connection.

9. Using a bowline knot, secure 20-foot nylon cord retaining line to neck of CO₂ cylinder. Safety-tie bowline knot with one turn of size E thread. See figure 11-23.

10. Ensure that cylinder valve antichafing sleeve is installed. Ensure that proper inflation assembly cover is used to cover inflation assembly.

11. Fake 20-foot nylon cord retaining line and sea anchor mooring line and secure with rubber bands.

12. Stow sea anchor and faked sea anchor mooring line in sea anchor pocket.

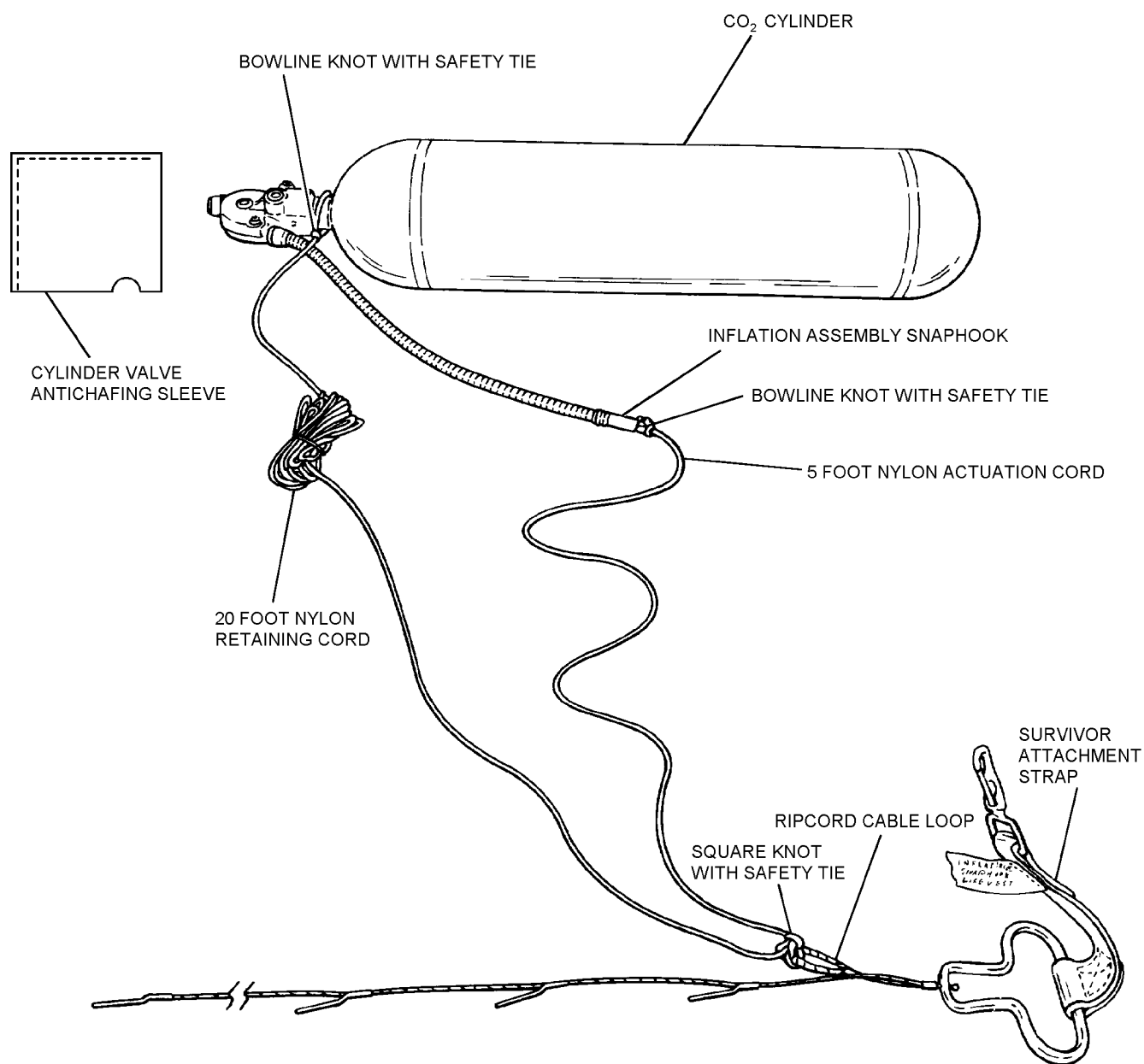


Figure 11-23. CO₂ Cylinder Down-Pull Routing

10110023

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13. Stow heaving lines in heaving line pockets as follows:

a. Secure the loose end of the heaving line to the loop in the bottom of the heaving line pocket with a bowline knot.

b. Remove all twists and tangles from heaving line and grommet.

c. Fake the heaving line in 11 to 13-inch bights on a flat surface starting 12 to 15 inches from the loop in the bottom of the heaving line pocket.

d. Continue faking until 15 to 21 inches of line remains, measured from last bight of line to the grommet.

f. Place the heaving line under the grommet in the heaving line pocket and close the pocket.

14. Dust entire liferaft assembly lightly with talc (MIL-T-50036A).

15. Stow painter line in painter line pouch by forming eight 3 1/2-inch bights in line and inserting each bight in eight hesitator loops provided. Leave 30 inches of unstowed painter line at each end of pouch. See [figure 11-24](#). Close pouch; then secure with hook and pile tape provided.

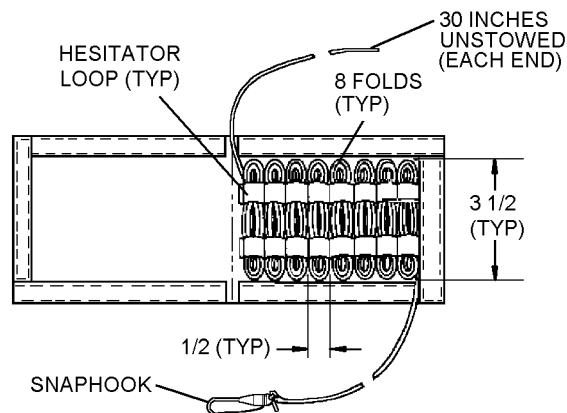
16. Attach snaphook to end of unstowed painter line extending from open end of pouch with a bowline knot.

17. Attach end of painter line without snaphook to survivor holding handle on tube section 7.

WARNING

To prevent possible malfunction during inflation ensure that no lifeline, sea anchor mooring line, painter line, or retaining line entangles or loops liferaft hardware during folding and packing procedure.

18. Fold raft in accordance with [figure 11-25](#). Position accessory container on folded raft and tie to nearest survivor holding handle using a 10-foot length of Type III nylon cord (MIL-C-5040).



10110024

Figure 11-24. Stowed Painter Line

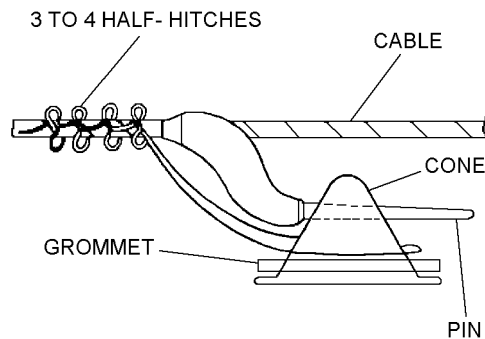
19. Insert rolled liferaft into carrying case so that pull cable housing and attached actuation line are positioned toward carrying case ripcord handle end flap.

20. Stow painter line pouch behind carrying case end flap opposite from ripcord handle end of container; then attach painter line snaphook to end flap carrying handle.

NOTE

Painter line snaphook shall be attached temporarily to the end flap carrying handle opposite from ripcord end of container. This will provide for easy access to the painter line snaphook for attachment to aircraft.

21. To close carrying case, place grommet over locking cones and insert ripcord pins into locking cones. Safety-tie first, middle, and last ripcord pins by passing a 11-inch length of size E nylon thread (V-T-295) under ripcord pin. Secure thread to ripcord cable with 3 or 4 half-inches.



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Step 21 - Para 11-75

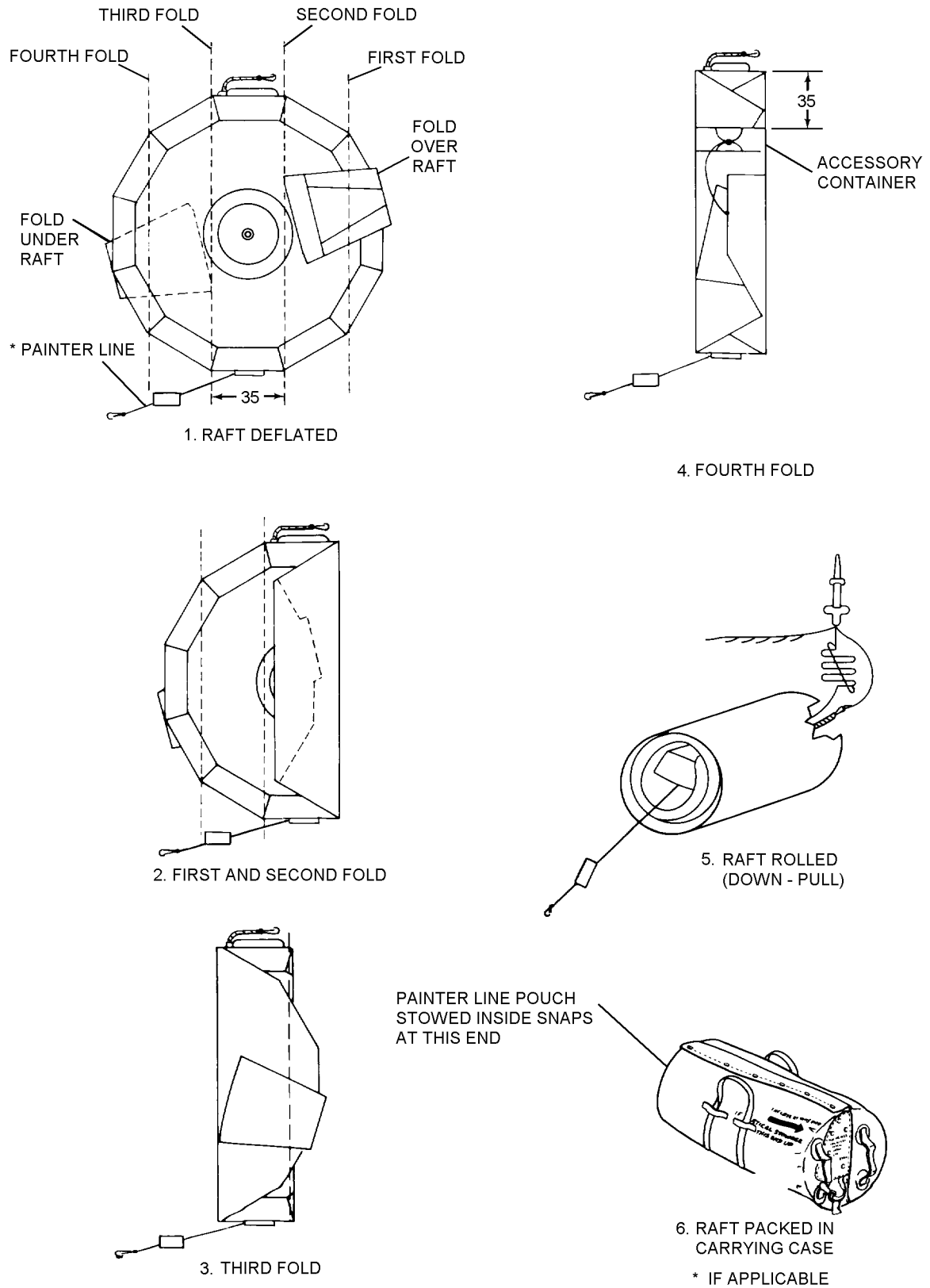
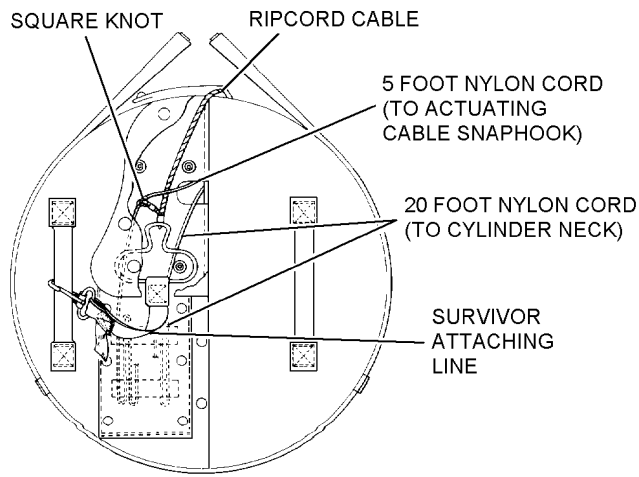


Figure 11-25. LRU-15/A Folding Procedure (Droppable)

10110025

22. Complete closure of carrying case by securing snap fasteners of cable protector flap closed. Position ripcord handle under protective flap on carrying case end flap. Attach survivor attachment line snaphook to end flap carrying handle. Stow 20-foot nylon cord retaining line and 5-foot nylon cord actuating line secure remaining snap fasteners.



Step 22 - Para 11-75

K0075022



To prevent pull cable housing breakage, do not stow or store liferaft pack on ripcord handle end of pack.

23. Make necessary entries on appropriate form in accordance with OPNAVINST 4790.2 Series.

11-76. PACKING PROCEDURE FOR LRU-15/A LIFERAFT (C-130 WING INSTALLATION). To pack an LRU-15/A liferaft assembly for C-130 wing installation, proceed as follows:

1. Ensure that liferaft, container, and accessory container have been inspected in accordance with [paragraph 11-13](#). Liferaft packing components are listed in [table 11-12](#).

NOTE

NAVAIR 13-1-6.5 contains information on inspection/replacement and modification to the survival items.

2. Ensure that survival items have been inspected for expiration and damage. Refer to [table 11-7](#) for items used.



Cushioning wrap shall not be used for wrapping survival items in C-130 externally stowed liferafts.

3. Wrap breakable survival items with rubber-coated cloth, and secure with rubber bands. Stow survival items in accessory container. Tie hand pump, PRT-5 transmitter, and Manual Reverse Osmosis Desalinator (MROD) to accessory container grommet with a 48-inch length of Type III nylon cord. Ensure that a bowline knot is applied.

Table 11-12. Liferaft Packing Components (C-130 Wing)

Component	Quantity	Reference Number	NIIN	SM&R Code
Carrying Case	1	CL214D2-1 (R/H) (CAGE 80206) or CL214D2-2 (L/H) (CAGE 80206)	00-138-7121 00-138-7119	PAOGG
Accessory Container	1	63A80H11-1 (CAGE 30003)	00-075-8328	PAOZZ
Inflation Assembly Cover	1	63A80H8-1 (CAGE 30003)	01-126-6141	PAOZZ

4. Secure latches on first aid kit several layers of pressure-sensitive tape (NIIN 00-266-5016). Using an 8-foot length of Type III nylon cord, tie an overhand knot in both ends. Wrap one end of cord two turns twice around the first aid kit on the inside of the kit latches and tie with a surgeon's knot. Route opposite end of cord to accessory container grommet and secure with a bowline knot. Stow first aid kit in accessory container.

5. Attach locally fabricated vent valve streamer (figure 11-26) to vent manifold assembly. Streamer shall remain attached to vent until liferaft compartment door is ready for closing.

6. Ensure that all topping-off valves are closed.

7. Ensure that cylinder valve antichafing sleeve is installed. Ensure that proper inflation assembly cover is used (see figure 11-3).

8. Fake sea anchor mooring line and secure with a rubber band. Stow sea anchor and faked sea anchor mooring line in sea anchor pocket.

9. Stow heaving lines in heaving line pockets (paragraph 11-75).

10. Dust entire raft assembly lightly with talc (MIL-T-50036A).

NOTE

Painter lines shall be installed in all multi-place liferafts. The painter line shall be a 60-foot length of Type I, Nylon Cord (MIL-C-5040, NIIN 00-240-2154). The painter line retains a deployed raft to the aircraft during emergency egress and is designed to break under a 100 pound pull if the aircraft sinks.

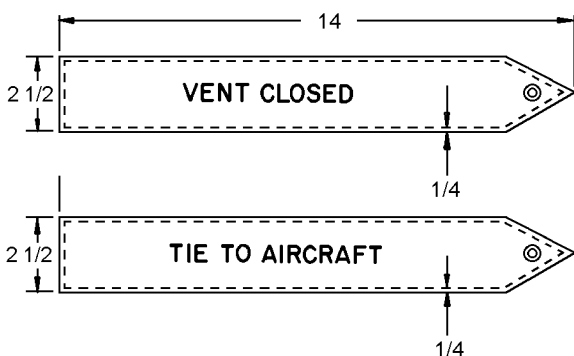


Figure 11-26. Streamers

10110026

11. Stow painter line in painter line pouch by forming eight 3 1/2-inch bights in line and inserting each bight in one of the eight hesitator loops provided. Leave 24 inches of unstowed painter line at each end of the pouch. (See figure 11-27.) Close pouch; then secure with hook and pile tape provided.

12. Attach snaphook to end of unstowed painter line extending from open end of pouch with a bowline knot.

13. Attach end of painter line without snaphook to the survivor-holding handle on tube section 7.

WARNING

To prevent possible malfunction during inflation ensure that no lifeline, sea anchor mooring line, painter line, or retaining line entangles or loops liferaft hardware during folding and packing procedures.

14. Fold raft in accordance with figure 11-28. Ensure that edges of folded raft are 5 inches from each end of CO₂ cylinder and inflation valve.

NOTE

The following sequence shall be followed for left wing installation. Reverse raft for right wing installation.

15. Attach locally fabricated red streamer (Tie To Aircraft, figure 11-26) to end of painter line. Streamer shall remain attached until line is attached to aircraft.

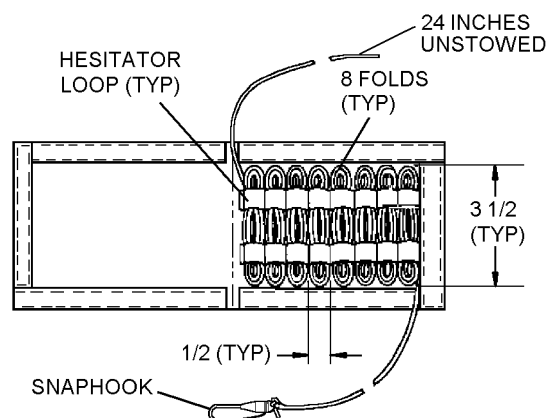


Figure 11-27. Stowed Painter Line

10110027

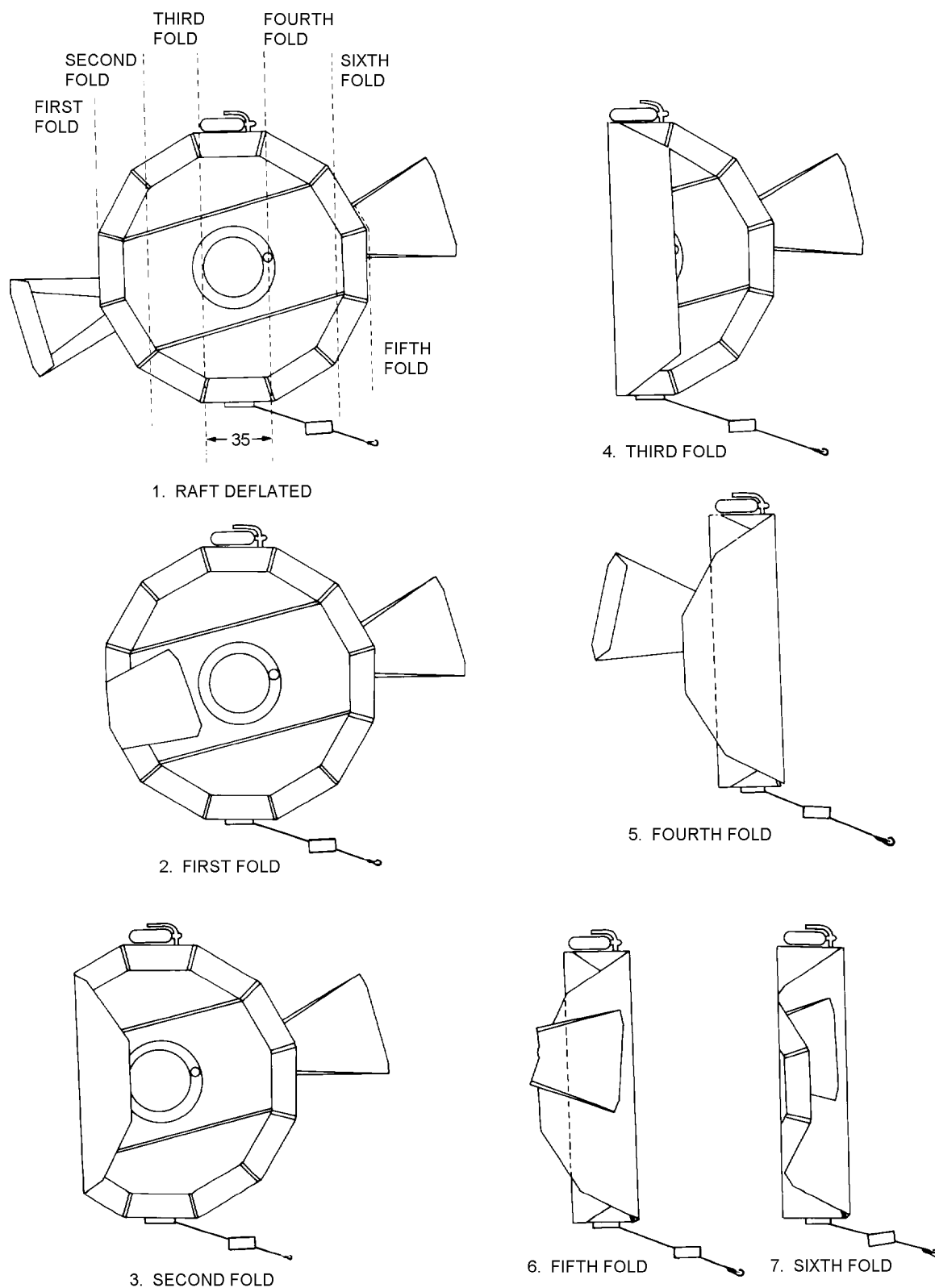
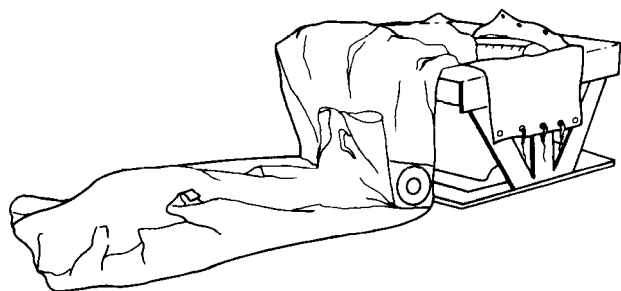


Figure 11-28. LRU-15/A Folding Procedure (C-130 Wing Installation)

10110028

16. Pull raft over edge of packing assembly opposite cylinder cradle and place cylinder in cradle.



K0076016

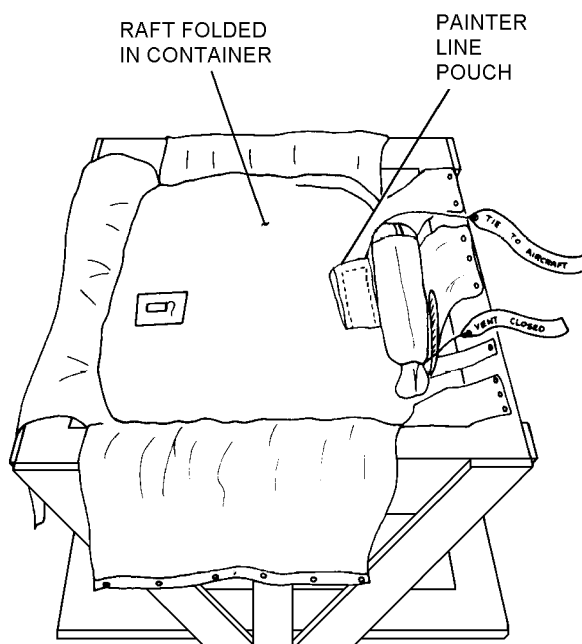
Step 16 - Para 11-76

17. Holding cylinder in cradle, smooth raft at bottom of container.

18. Accordion fold remainder of raft into container, smoothing each fold to make raft as compact as possible. Last fold shall be flush with cylinder.

19. Place accessory container on liferaft. Using 10 foot length of Type III nylon cord, tie one free end to both handles of container using bowline knot. Tie other end of cord to Survivor Holding Handle subassembly opposite CO₂ cylinder using bowline knot.

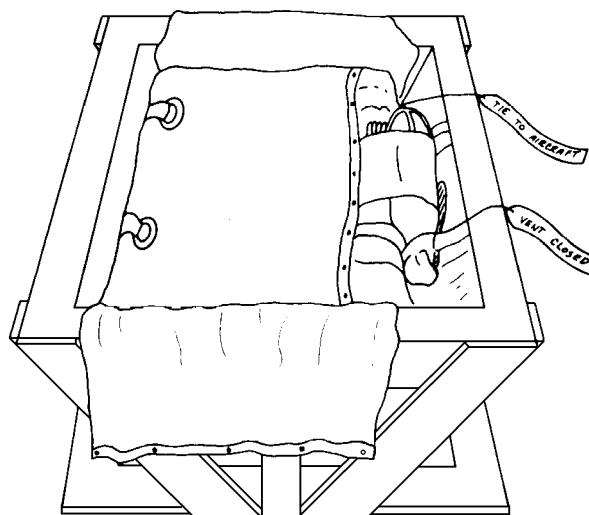
20. Place pointer line pouch along cylinder as shown. Allow end with streamer to project through container opening.



K0076020

Step 20 - Para 11-76

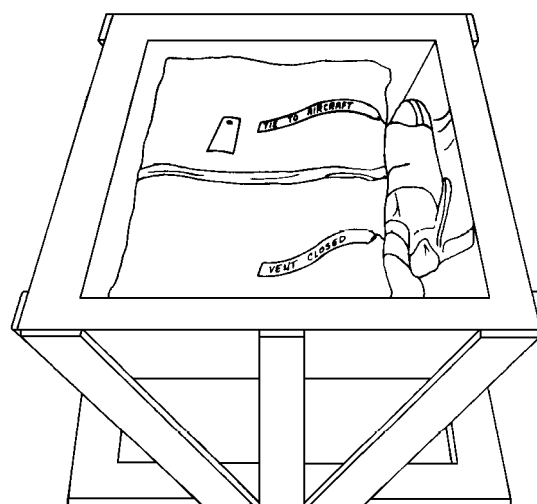
21. Fold front and back flaps over a raft container and cylinder. Fasten snaps.



K0076021

Step 21 - Para 11-76

22. Fold the two side flaps over and lace together using nylon size F thread (V-T-295) single, or 16-pound (breaking strength) cotton cord. Tie ends to tie down tabs on front and rear of container. Position vent and tie-to-aircraft warning streamers as shown.



K0076022

Step 22 - Para 11-76



Red warning streamers shall remain attached until vent valve is opened and painter line is attached during aircraft installation.

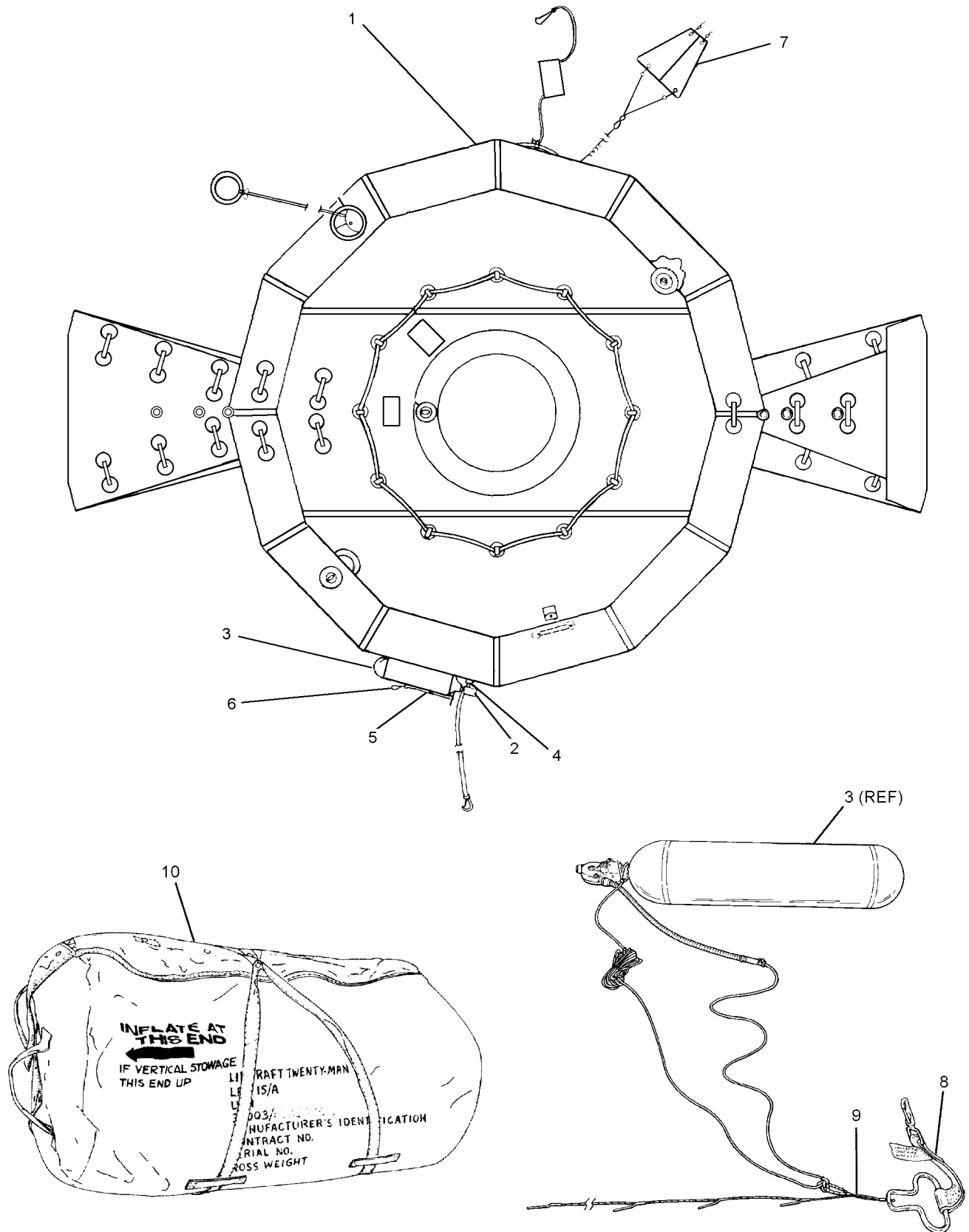
23. Make necessary entries on appropriate form in accordance with OPNAVINST 4790.2 Series.

Section 11-4. Illustrated Parts Breakdown (IPB)

11-77. GENERAL.

11-78. This section lists and illustrates the assemblies and detail parts of the LRU-15/A Inflatable Twenty-Man Liferaft.

11-79. The Illustrated Parts Breakdown should be used during maintenance when requisitioning and identifying parts.



10110029

Figure 11-29. LRU-15/A Liferaft (Droppable) Illustrated Parts Breakdown

Figure and Index Number	Part Number	Description 1 2 3 4 5 6 7	Units Per Assembly	Usable On Code
11-29		LRU-15/A LIFERAFT ASSEMBLY (Note 5)	REF	
-1	63A80H1-601	. LIFERAFT, Twenty-Man Inflatable (CAGE 30003) (NIIN 01-011-7478) (LRU-15/A) (Note 1)	1	
-2	63A120H1-71	. . INFLATION VALVE (CAGE 30003) (Note 2) (Note 3)	1	
-3	MS26545B2C0415	. . . CO ₂ CYLINDER (CAGE 96906) (NIIN 00-595-3698) (Note 3)	1	
-4	9153	. . . MANIFOLD (CAGE 97375) (NIIN 00-075-9389)	1	
	C50890	. . . MANIFOLD (CAGE 08407)	1	
-5	1106AS102-1	. . . HOUSING ASSEMBLY (CAGE 30003) (NIIN 00-141-0721)	1	
-6	1106AS104-1	. . . CABLE ASSEMBLY (CAGE 30003) (NIIN 00-107-1656)	1	
-7	MIL-A-3339	. . SEA ANCHOR, Type I, Size 3 (NIIN 00-850-6552) (Note 4)	1	
-8	63A80H6-13	. SURVIVOR ATTACHMENT STRAP (CAGE 30003) (Note 6)	1	
-9	—	. RIPCORDER (Supplied by Vendor)	1	
-10	63A80H-1	. CARRYING CASE (CAGE 30003) (NIIN 00-913-1065)	1	
Notes: 1. Inflatable twenty-man liferaft P/N 63A80H1-601 is the bare liferaft without the inflation system and survival items. 2. Item is no longer procured or stocked. Item may be obtained through salvage. 3. The CO ₂ cylinder and inflation valve P/N 63A120H1-71 when assembled as a unit becomes (CAGE 30003) P/N 63A120H1-16, which can be requisitioned as a complete assembly. 4. Due to low demand, sea anchors may not be stocked. They may be open purchased from the Patten Co, 1803 Madrid Ave, Lake Worth, FL (561) 588-8500. 5. The LRU-15/A 20 person life raft is being replaced by the new 20 person MPLR LRU-32/A, P/N 64510-101, on an attrition basis, for all aircraft applications except the C-130. C-130 units must continue to use the LRU-15/A due to the unique wing installation. All other aircraft operators must order the new MPLR. See Chapter 12 for MPLR information. 6. Locally fabricated in accordance with figure 11-22.				

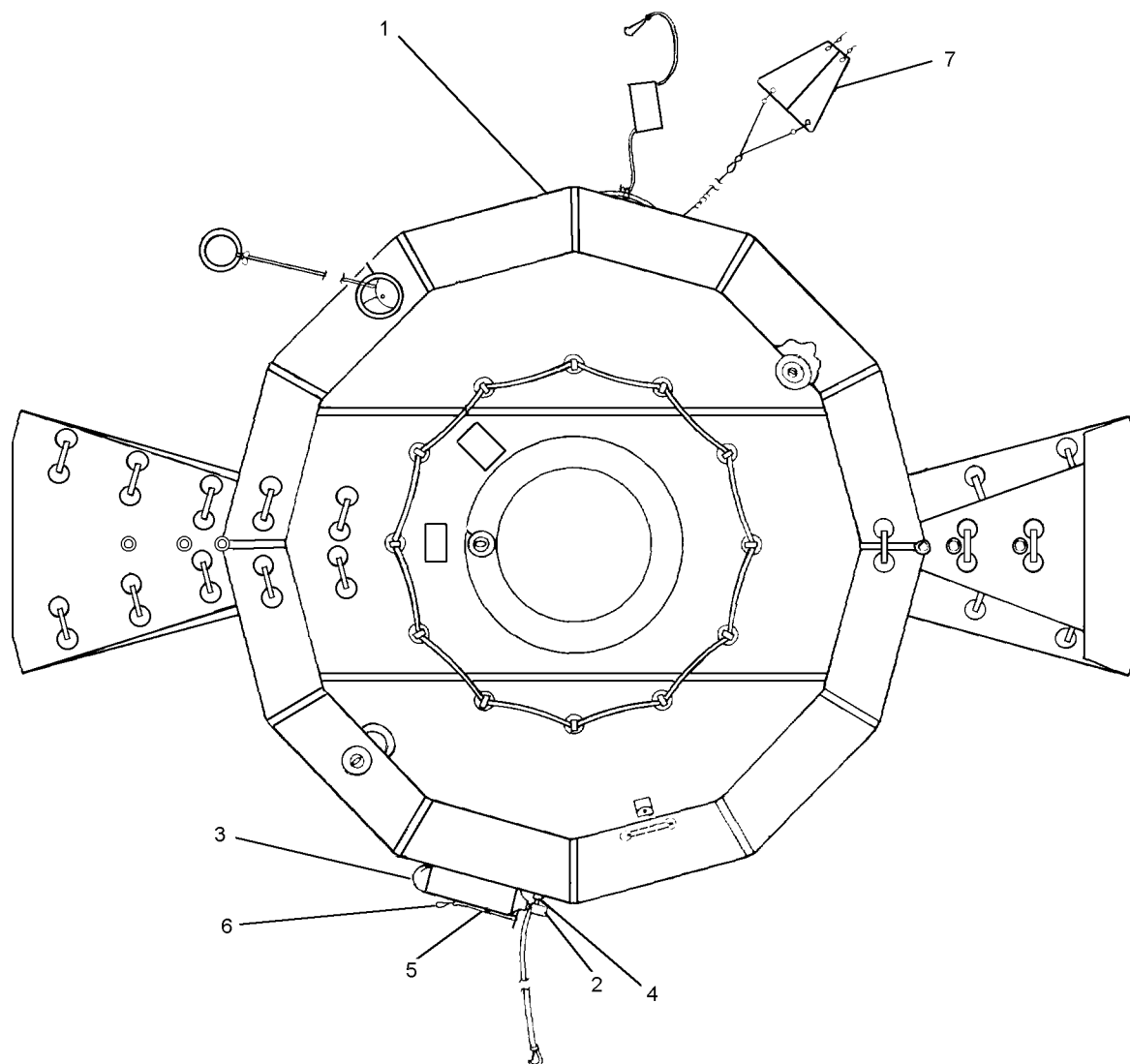


Figure 11-30. LRU-15/A Liferaft (C-130 Wing Installation) Illustrated Parts Breakdown

10120030

NAVAIR 13-1-6.1-1

Figure and Index Number	Part Number	Description							Units Per Assembly	Usable On Code
		1	2	3	4	5	6	7		
11-30 -1 -2 -3 -4 -5 -6 -7	63A80H1-601	LRU-15/A LIFERAFT ASSEMBLY (Note 6)							REF	
		. LIFERAFT, Twenty-Man, Inflatable							1	
		(LRU-15/A) (CAGE 30003)								
		(NIIN 01-011-7478) (Note 1) (Note 4)								
	63A120H1-71	. . INFLATION VALVE (CAGE 30003)							1	
		(Note 2 and 3)								
	MS26545B2C0415	. . . CO ₂ CYLINDER (CAGE 96906)							1	
		(NIIN 00-595-3698) (Note 3)								
	9153	. . . MANIFOLD (CAGE 97375)							1	
		(NIIN 00-075-9389)								
	C50890	. . . MANIFOLD (CAGE 08407)							1	
	1106AS102-1	. . . HOUSING ASSEMBLY (CAGE 30003)							1	
		(NIIN 00-141-0721)								
	1106AS104-1	. . . CABLE ASSEMBLY (CAGE 30003)							1	
		(NIIN 00-107-1656)								
	MIL-A-3339	. . SEA ANCHOR, Type I, Size 3							1	
		(NIIN 00-850-6552) (Note 5)								
		<p>Notes: 1. Inflatable 20-man liferaft P/N 63A80H1-601 is the bare liferaft without the inflation system and survival items. Once configured with inflation assembly parts as listed, and with the inlet check valve removed in accordance with paragraph 11-69, the LRU-15/A liferaft becomes P/N 63A80H1-301 for C-130 wing installation, which cannot be requisitioned as a complete assembly.</p> <p>2. Item is no longer procured or stocked. Item may be obtained through salvage.</p> <p>3. The CO₂ cylinder and inflation valve P/N 63A120H1-71 when assembled as a unit becomes (CAGE 30003) P/N 63A120H1-16, which can be requisitioned as a complete assembly.</p> <p>4. The carrying case for C-130 wing installation may be fabricated in accordance with paragraph 11-67.</p> <p>5. Due to low demand, sea anchors may not be stocked. They may be open purchased from the Patten Co, 1803 Madrid Ave, Lake Worth, FL (561) 588-8500.</p> <p>6. The LRU-15/A 20 person life raft is being replaced by the new 20 person MPLR LRU-32/A, P/N 64510-101, on an attrition basis, for all aircraft applications except the C-130. C-130 units must continue to use the LRU-15/A due to the unique wing installation. All other aircraft operators must order the new MPLR. See Chapter 12 for MPLR information.</p>								

NUMERICAL INDEX

Part Number	Figure and Index Number	SM&R Code
MIL-A-3339	11-29-7	PADZZ
	11-30-7	PADZZ
MS26545B2C0415	11-29-3	
	11-30-3	PA--Z
1106AS102-1	11-29-5	PAOZZ
	11-30-5	PAOZZ
1106AS103-1	11-29-6	PAOZZ
1106AS104-1	11-30-6	PAOZZ
C50890	11-29-4	
	11-30-4	

Part Number	Figure and Index Number	SM&R Code
63A80H1-601	11-29-1	PAOGG
	11-30-1	PAOGG
63A80H6-1	11-29-10	PAOGG
63A80H6-13	11-29-8	
63A120H1-71	11-29-2	XBOZZ
	11-30-2	XBOZZ
9153	11-29-4	
	11-30-4	PAOZZ

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